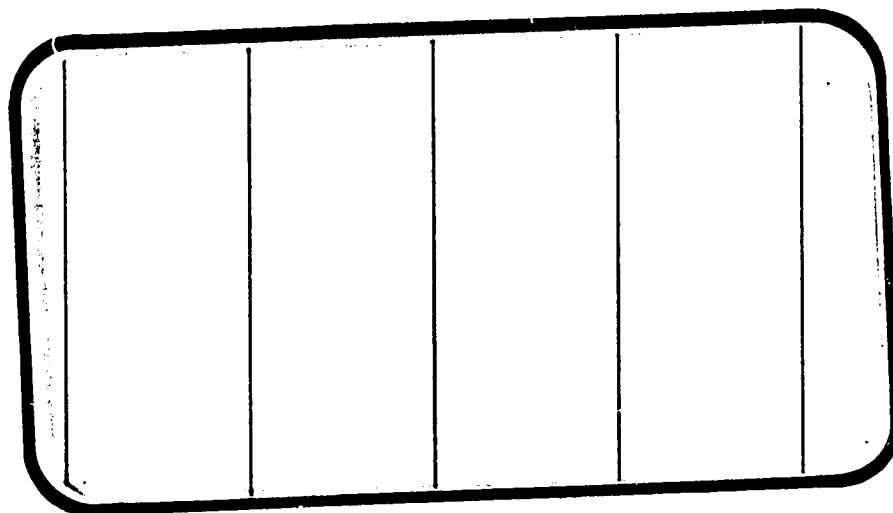


NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA CR-

141504



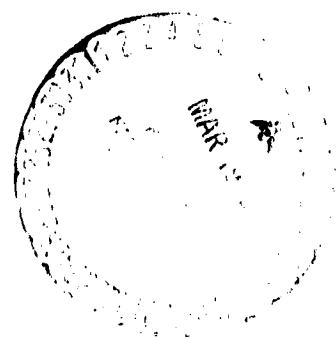
(NASA-CR-141504) RESULTS FROM
INVESTIGATIONS IN THE NASA/MSFC TWT ON A
.004 SCALE MODEL SPACE SHUTTLE LAUNCH
VEHICLE (MODEL 13P-OTS) TO DETERMINE GAS
SUPPLY STRUCTURE EFFECTS ON MODEL PRESSURE

N75-174J7

Unclas
G3/18 11932

SPACE SHUTTLE

AEROTHERMODYNAMIC DATA REPORT



JOHNSON SPACE CENTER

HOUSTON, TEXAS

DATA MANAGEMENT services

SPACE DIVISION



**CHRYSLER
CORPORATION**

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RESULTS FROM INVESTIGATIONS IN THE
NASA/MSFC TWT ON A .004 SCALE MODEL
SPACE SHUTTLE LAUNCH VEHICLE (MODEL 13P-OTS)
TO DETERMINE GAS SUPPLY STRUT EFFECTS ON
MODEL PRESSURE ENVIRONMENT (IA53)

by

W. P. Garton

Prepared under NASA Contract Number NAS9-13247

by

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Chrysler Corporation Space Division
New Orleans, La. 70189

for

Engineering Analysis Division
Johnson Space Center
National Aeronautics and Space Administration
Houston, Texas

WIND TUNNEL TEST SPECIFICS:

Test Number: MSFC TWT 588
NASA Series No.: IA53
Occupancy Hours: 39
Date: Dec., 1973 - Jan., 1974

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Chrysler Corporation Space Division assumes no responsibility
for the data presented other than display characteristics.

RESULTS FROM INVESTIGATIONS IN THE NASA/MSFC
TWT ON A .004 SCALE MODEL SPACE SHUTTLE LAUNCH
VEHICLE (MODEL 13P-OTS) TO DETERMINE GAS SUPPLY
STRUT EFFECTS ON MODEL PRESSURE ENVIRONMENT (IA53)

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ABSTRACT

Results from tests in the NASA/MSFC 14 x 14 inch TWT consist of pressure measurements on the aft portion, in the base regions, and on the wing surfaces of the Rockwell Space Shuttle Launch Vehicle components. Additionally, axial force determinations were made from the pressure data.

All data are in coefficient form.

Data were recorded with the model at zero degrees angle of attack and sideslip through a Mach number range from 0.9 to 3.0. Since the purpose of the tests was to determine the effects of strut mounting on the model, the only configuration changes investigated were strut mounting techniques and gas line fairing location between ET and orbiter.

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B) CABO, CABT, CABS vs Mach Number

C) CP vs X/C
D) CT vs ZY/B

NOMENCLATURE

<u>SYMBOL</u>	<u>DATAMAN SYMBOL</u>	<u>DEFINITION</u>
A_b		base area, in. ²
b	BREF	reference span, in.
C_A	CA	axial force coefficient, F_A/qS_{ref}
C_{A_b}	CAB	base axial force coefficient, $[(p_\infty - p_b)/q] (A_b/S_{ref})$
C_{p_x}	CP	pressure coefficient, $(p_x - p_\infty)/q$
C_{PB_x}	CPBX	base pressure coefficient at orifice, $(p_x - p_\infty)/q$
F_A		axial force, lb.
l_{ref}	LREF	reference length, in.
M	MACH	Mach number
p	P	static pressure, psi
P	PO	total pressure, psi
q	Q(Psi)	dynamic pressure, psi
RN/L	RN/L	Reynolds number per unit length; million/ft.
S_{ref}	SREF	reference area, in. ²
T		temperature, °F
X		longitudinal displacement along centerline
Y		lateral displacement from centerline
Z		vertical displacement from centerline
α	ALPHA	angle-of-attack, angle between the projection of the wind X_w -axis on the body X, Z-plane and the body X-axis; deg.
β	BETA	sideslip angle, angle between the wind X_w -axis and the projection of this axis on the body X, Z-plane; deg.

NOMENCLATURE (Continued)

<u>SYMBOL</u>	<u>DATAMAN SYMBOL</u>	<u>DEFINITION</u>
ϕ	PHI	model roll angle, positive right wing down
X/c	X/C	chordwise location, ratio of distance from the leading edge to the length of the local chord
Y/b/2	2Y/B	semi-span location, ratio of distance from the longitudinal centerline to the wing semi-span

SUBSCRIPTS

b	base
o	orbiter
s	solid rocket booster
T	total conditions
t	external tank
w	wing
x	orifice number
∞	free stream conditions
ref	reference conditions
1,2,etc	pressure orifice number

INTRODUCTION

Several wind tunnel tests are planned to investigate the effects of Solid Rocket Booster (SRB) and Main Propulsion System (MPS) engine plume effects on the aft body and base pressure environment of the Space Shuttle Launch Configuration. The gases used to simulate the engine exhaust plume flows during these tests must be introduced into the model through a supporting strut or struts. The purpose of the investigation reported herein was to determine the effects of the various proposed gas supply strut configurations on the vehicle base pressure environment so that optimum strut configuration and placement could be achieved.

Some of the strut configurations investigated during this test were large enough to cause tunnel blockage concern. These configurations will be tested in the Rockwell 7 x 7 ft Trisonic Tunnel using the same model and model support hardware for comparison results.

All data were taken at zero degrees angle of attack and sideslip covering a Mach number range from 0.9 to 3.0. The Rockwell designation for the integrated vehicle model was 13P-OTS. Designations for the orbiter, external tank, and solid rocket booster individually were 13P-0, T17, and S16. The test was conducted during December 1973 - January 1974 carrying a test number of MSFC TWT 588 and a NASA series number of IA53.

CONFIGURATIONS INVESTIGATED

The model used in this test is designated 13P-OTS. It is comprised of the following major components, all constructed to .004-scale:

Orbiter, 13P-0 Vehicle 2A (modified), with provisions for 19 pressure measurements. Elevon, aileron, rudder and speed brake deflections were all zero. The specific elements of the orbiter vehicle are:

<u>Element</u>	<u>Identifier</u>
Body	B58
Canopy	C5
Elevon	E18
Body Flap	F4
OMS Pod	M3
Rudder	R4
Vertical Tail	V1
Wing	W87

Modifications to the vehicle 2A configuration consisted of removal of the manipulator arm fairings (D7) and alteration of the nose forward of body station 300 to approximate vehicle 3 contours (Drawing VI.70-000139B). Dimensional data for these elements are given in Table III.

External Tank, T17 Vehicle 3 configuration, with 11 pressure measurements. Dimensional data appear in Table III.

Solid Rocket Boosters S16 Vehicle 3A configuration. Dimensional data appear in Table III. The left-hand booster has provisions for 7 base pressure measurements.

Launch Configuration C1	Consists of orbiter, external tank and solid rocket booster with attachment hardware and protuberances
Strut M1	Single strut mounted to lower surface of external tank.
Strut M2	Single strut mounted to the side of the left solid rocket booster.
Fairings G1 and G2	These fairings, G1 forward and G2 aft, are shown in the sketch of figure 5, together with pertinent dimensional data.

Each of the dummy gas supply struts may be installed in one of two positions (forward or aft) on the integrated vehicle model. These positions, in terms of strut leading and trailing edge intersections with the body to which it is mated, are given in Table IV.

The gas supply fairings, G1 and G2, between the orbiter and external tank can each be installed in one position only. The respective leading and trailing edge positions are as follows:

	Leading Edge	Trailing Edge
G1	$X_o = 378^*$	$X_o = 663.5$
G2	$X_o = 1031.5$	$X_o = 1317$

* Theoretical location because of presence of forward orbiter/external tank attach post.

Minor components which may be installed on the major components of model assembly include the external tank and solid rocket booster protuberances, the attach structures, feedlines, and umbilical door fairing support. In general, the configuration and arrangement of these parts, when installed, is in agreement with the following drawings:

VL72-000088D	General Arrangement
VL78-000041B	External Tank
VL77-000036A	Solid Rocket Booster
VL70-000139B	Orbiter

The specific components used in this test include simulations of the following:

<u>Item</u>	<u>Description</u>	<u>Designation</u>
ET Protuberance	LOX Vent Line Fairing	PT ₁
ET Protuberance	LOX Feed Line	PT ₂
ET Protuberance	LH ₂ Vent Line	PT ₃
SRB Protuberance	Attach Ring	PS ₂
SRB Protuberance	Separation Rocket Fairing	PS ₃
SRB Protuberance	Electrical Tunnel Fairing	PS ₁
Attach Structure	Front Orbiter/ET	AT ₅
Attach Structure	Left Rear Orbiter/ET	AT ₆
Attach Structure	Right Rear Orbiter/ET	AT ₇
Attach Structure	Front SRB/ET	AT ₈
Attach Structure	Rear SRB/ET	AT ₉
Orbiter Feedline	LOX Feedline	FL ₁
Orbiter Feedline	LH ₂ Feedline	FL ₂
Fairing Support	Umbilical Door Fairing Support	F ¹

The model was supported in the tunnel on the upper arm of a special dual sting inserted in the base of the orbiter model. When struts M1 or M2 are installed, their outer ends are attached to and supported by the lower arm of the dual sting. To enable the outer ends of both the SRB - mounted and ET - mounted struts to mate with the lower arm of the sting, the upper arm, with the attached integrated vehicle model, can be rotated about an axis coincident with the external tank longitudinal centerline. The general arrangement of the model and support hardware in the tunnel is shown in Figures 2 and 3.

The arrangement and locations of the pressure orifices on the orbiter wing and base, on the external tank, and on the base of the left-hand solid rocket booster are shown in Figure 6. The locations of the pressure orifices on the orbiter wing are given in terms of percent chord and percent semi span of the theoretical wing in Table V, and the orbiter nominal base pressure measurement locations are shown in Table VI.

The nominal locations of the pressure orifices in the bases of the external tank and solid rocket are shown in Tables VII and VIII, respectively. The angular displacements are measured counterclockwise from the top of the body as viewed from the rear (see Figure 6), and the radial displacements are measured in inches, model scale, from the body longitudinal centerline.

TEST CONDITIONS

All data were recorded with the model at zero degrees angle of attack and sideslip. The tunnel conditions existing during the test are presented in Table I.

The model was assembled for tunnel installation with a standoff (spacer) of incorrect length at the forward orbiter/external tank attach point. The error was not detected and rectified until runs number 1 through 18 had been accomplished. Runs 9/1 and 10/1 were then performed to verify that this model configuration change had no significant effect on the measured base pressures. All other runs (numbers 19 through 45) were made with the longer (correct length) standoff installed.

Tunnel blockage factors for the various model/strut configurations were 3.51 for M1G1 or M1G2 and 3.37 for M2G1 or M2G2.

TEST FACILITY DESCRIPTION

The Marshall Space Flight Center 14" x 14" Trisonic Wind Tunnel is an intermittent blowdown tunnel which operates by high pressure air flowing from storage to either vacuum or atmospheric conditions. A Mach number range from .2 to 5.85 is covered by utilizing two interchangeable test sections. The transonic section permits testing at Mach 0.20 through 2.50, and the supersonic section permits testing at Mach 2.74 through 5.85. Mach numbers between .2 and .9 are obtained by using a controllable diffuser. The range from .95 to 1.3 is achieved through the use of plenum suction and perforated walls. Mach numbers of 1.44, 1.93, and 2.50 are produced by interchangeable sets of fixed contour nozzle blocks. Above Mach 2.50 a set of fixed contour nozzle blocks are tilted and translated automatically to produce any desired Mach number in .25 increments.

Air is supplied to a 6000 cubic foot storage tank at approximately -40°F dew point and 500 psi. The compressor is a three-stage reciprocating unit driven by a 1500 hp motor.

The tunnel flow is established and controlled with a servo-actuated gate valve. The controlled air flows through the valve diffuser into the stilling chamber and heat exchanger where the air temperature can be controlled from ambient to approximately 180°F. The air then passes through the test section which contains the nozzle blocks and test region.

Downstream of the test section is a hydraulically controlled pitch sector that provides a total angle of attack range of 20° (+10°). Sting offsets are available for obtaining various maximum angles of attack up to 25°.

The diffuser section has movable floor and ceiling panels which are the primary means of controlling the subsonic Mach numbers and permit more efficient running supersonically. The sector assembly and supersonic diffuser telescope into the subsonic diffuser to allow easy access to the model and test section.

Tunnel flow is exhausted through an acoustically damped tower to atmosphere or into the vacuum field of 42,000 cubic feet. The vacuum tanks are evacuated by vacuum pumps driven by a total of 500 hp.

Data are recorded by a solid-state digital data acquisition system. The digital data are transferred to punched cards during the run to be reduced later by a computer to proper coefficient form.

DATA REDUCTION

The pressure data were reduced to coefficient form and recorded on tape with the wind tunnel parameters, model configuration and run number. The base pressure coefficients for all three vehicle components were integrated in accordance with the following approximate equations to obtain base axial force coefficients:

Orbiter:

$$C_{Abo} = \frac{-1}{q S_{ref}} (.184 C_{p1} + .170 C_{p2} + .390 C_{p3} + .214 C_{p4})$$

External Tank:

$$C_{A_{bt}} = \frac{-1}{q S_{ref}} [.072 (C_{p5} + C_{p9}) + .144 (C_{p10} + C_{p14} + C_{p15}) + .082 (C_{p6} + C_{p7} + C_{p8}) + .164 (C_{p11} + C_{p12} + C_{p13})]$$

Solid Rocket Booster (One):

$$C_{Abs} = \frac{-1}{q S_{ref}} [.0158 C_{p16} + .0594 (C_{p19} + C_{p20} + C_{p21} + C_{p22}) + .1049 (C_{p17} + C_{p18})]$$

The numeral subscripts in these equations indicate the pressure orifice numbers shown in Figure 6 and listed in Tables VI through VIII.

Pressure coefficients were calculated by:

$$C_{p_x} = (p_x - p_{\infty})/q$$

where x indicates the pressure orifice number.

Reference dimensions used were:

Parameter	Dimension	
	Full Scale	Model Scale
Reference Area (S_{ref})	2690 ft ²	6.198 in ²
Base Areas (A_b)		
Orbiter	427.8 ft ²	0.958 in ² *
External Tank	572.55 ft ²	1.319 in ²
Solid Rocket (1)	201.06 ft ²	0.4632 in ²

*Represents sum of model areas to be used in computation of

$C_{A_{bo}}$.

DATA PRESENTATION

The data have been plotted in a manner to permit ready comparison of the effects of the various strut configurations on the aft pressure field experienced by the model. Three groupings of model configurations have been employed for all data presentation:

CONFIGURATION GROUPS

1	2	3
C1F ¹	C1F ¹	C1F ¹
C1F ¹ M1 ₁	C1F ¹ G ₁	C1F ¹ G2M2 ₁
C1F ¹ M1 ₂	C1F ¹ G ₂	C1F ¹ G2M2 ₂
C1F ¹ M2 ₁		
C1F ¹ M2 ₂		

Group 1 compares horizontal versus vertical strut mounting techniques.

Group 2 compares forward or aft mounting of the gas supply fairing while

Group 3 is a combination of Groups 1 and 2.

In accordance with the groupings shown above, base pressure coefficients for each configuration are first plotted as a function of Mach number. Then the base axial force coefficient for each model component (i.e., orbiter, external tank, and SRB) is also presented as a function of Mach number. Finally, for each test Mach number, orbiter wing pressure coefficients are plotted as chordwise and spanwise profiles of pressure distribution for both upper and lower wing surfaces. The index of Data Figures should assist in location of any specific data plot. Data tabulations have been included as an appendix to this report.

TABLE I.

TEST : MSFC TWT-588		DATE : 11/26/73	
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBE (per unit length)	DYNAMIC PRESSURE (pounds/sq. inch)	STAGNATION TEMPERATURE (degrees Fahrenheit)
0.9	$6.2 \times 10^6/\text{ft}$	7.37	100
1.2	$6.7 \times 10^6/\text{ft}$	10.68	100
1.46	$6.5 \times 10^6/\text{ft}$	9.47	100
1.96	$7.0 \times 10^6/\text{ft}$	10.24	100
2.99	$4.0 \times 10^6/\text{ft}$	5.19	140
BALANCE UTILIZED: <u>NONE</u>			
	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	_____	_____	_____
SF	_____	_____	_____
AF	_____	_____	_____
PM	_____	_____	_____
RM	_____	_____	_____
YM	_____	_____	_____
COMMENTS: Pressure data only			

TABLE II.

[illegible]

TEST: NISFC TWT 548

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TABLE II (Continued)

TEST: MISC TWT 548		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: 11-26-73	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS/VALUES			NO. OF RUNS	MACH NUMBERS (OR ALTERNATE INDEPENDENT VARIABLE)					
		α	β	ϕ									
R96201	C1E1	0	0	0			5	0.9	1.2	1.46	1.96	2.99	
02	m1/1	1	1	0			5	3001	3002	3015	3016	3015	
03	m1/2	1	1	0			5	3004	3003	3014	3017	3024	
04	m2/1	1	1	0			5	3005	3006	3013	3018	3023	
05	m2/2	1	1	-90			5	3030	3031	3032	3035	3026	
06	G1	1	1	-90			5	3042	3043	3038	3037	3044	
07	G2	1	1	0			5	3008	3007	3012	3019	3022	
08	G2 m2/1	1	1	0			5	3009	3010	3011	3020	3021	
09	G2 m2/2	1	1	-90			5	3029	3028	3033	3034	3027	
		1	1	-90			5	3041	3040	3039	3036	3015	
1 7 13 19 25 31 37 43 49 55 61 67 73 75													
CPB1 CPB8 CPB9 CPB10 CPB11 CPB12 CPB15													
α OR β		SCHEDULES		COEFFICIENTS		IDVAR (1)		IDVAR (2)		NDV			

DATE: 11-26-73

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TABLE II (Concluded)

[illegible]

TABLE III. MODEL COMPONENT DIMENSIONAL DATA

MODEL COMPONENT: Body B58

GENERAL DESCRIPTION: Double Delta Wing Fuselage Per Lines VL70-000093, except nose modified to conform to Vehicle 3 configuration forward of Station 300 (Station 298 on Lines VL70-000139)

DRAWING NUMBER: VL72-000061 VL70-000139
VL70-000093

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>1328.3</u>	<u>5.313</u>
Max. Width X_0 560 to X_0 1307, in.	<u>216.0</u>	<u>0.864</u>
Max. Depth, in.	<u>239.0</u>	<u>0.956</u>
Fineness Ratio	<u>5.495</u>	<u>5.495</u>
Area		
Max. Cross-Sectional	<u>319.556</u>	<u>0.005</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: Canopy - C5

GENERAL DESCRIPTION: 2A Configuration Per NR lines VL70-000092.

Scale Model = .001

DRAWING NUMBER: VL70-000092

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Sta. Fwd. Bulkhead	<u>391.00</u>	<u>1.564</u>
Sta. T. E.	<u>560.0</u>	<u>2.210</u>
Canopy Intersects Body NL	<u>391.00</u>	<u>1.564</u>
Fineness Ratio	<u> </u>	<u> </u>
Area		
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: Elevon E-18GENERAL DESCRIPTION: 2A Configuration Per W-87, NR Lines VL70-000093Data for (1) of (2) SidesModel Scale = .004DRAWING NUMBER:VL70-000093

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area, FT^2	<u>205.517</u>	<u>0.0033</u>
Span (equivalent), in.	<u>353.34</u>	<u>1.413</u>
Inb'd equivalent chord	<u>114.78</u>	<u>0.459</u>
Outb'd equivalent chord	<u>55.00</u>	<u>0.220</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>.208</u>	<u>.208</u>
At Outb'd equiv. chord	<u>.400</u>	<u>.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>0.00</u>	<u>0.00</u>
Tailing Edge	<u>-10.02</u>	<u>-10.02</u>
Hingeline	<u>0.00</u>	<u>0.00</u>
Area Moment (Normal to hinge line), FT^3	<u>1548.07</u>	<u>0.00010</u>
Product of area moment		

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: F4 Body FlapGENERAL DESCRIPTION: 2A Configuration Per NR Lines VL70-000094 "A"Scale Model = .004DRAWING NUMBER: VL70-000094A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>84.70</u>	<u>0.3388</u>
Max. Width, in.	<u>265.00</u>	<u>1.060</u>
Max. Depth	<u> </u>	<u> </u>
Fineness Ratio	<u> </u>	<u> </u>
Area		
Max. Cross-Sectional	<u> </u>	<u> </u>
Planform, ft ²	<u>142.63715</u>	<u>0.002282</u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: OMS PODS-M3

GENERAL DESCRIPTION: 2A Light WT Configuration; per MC120074,

Per NR Lines VL70-000094.

Scale Model = .004

DRAWING NUMBER:

VL70-000094

DIMENSIONS:

FULL-SCALE

MODEL SCALE

Length, in.

346.0

1.440

Max. Width, in.

108.0

0.432

Max. Depth, in.

72.8

0.291

Fineness Ratio

Area:

Max. Cross-Sectional

Planform

Wetted

Base

4 of OMS POD

WP = 463.9 inches FS; WP 400.0 + 63.9 = 463.90 INFS
1.600 + .2556 = 1.8556 INMS

BP = 80.0 in. FS; 0.320 INMS

From Fuselage Station 1214.0 to 1560 INFS = 346.0 INFS
4.856 to 6.240 = 1.384 INMS

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (CONTINUED)

MODEL COMPONENT: Rudder R5GENERAL DESCRIPTION: 2A Configuration Per NR Lines VL70-000095.Scale Model - .004DRAWING NUMBER: VL70-000095

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Area, FT^2	<u>98.67</u>	<u>0.0016</u>
Span (equivalent), in.	<u>201.0</u>	<u>0.804</u>
Inb'd equivalent chord	<u>91.585</u>	<u>0.366</u>
Outb'd equivalent chord	<u>50.833</u>	<u>0.203</u>
Ratio movable surface chord/ total surface chord		
At Inb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
At Outb'd equiv. chord	<u>0.400</u>	<u>0.400</u>
Sweep Back Angles, degrees		
Leading Edge	<u>34.83314</u>	<u>34.83314</u>
Tailing Edge	<u>26.24915</u>	<u>26.24915</u>
Hingeline	<u>34.83314</u>	<u>34.83314</u>
Area Moment (Normal to hinge line), FT^3	<u>526.125</u>	<u>0.00003</u>
Product of area and mean chord		

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: Vertical Tail V5 (Light Wt. Orbiter Config)

GENERAL DESCRIPTION: Center Line Vertical Tail on the Double Delta Configuration with Double Wedge Airfoil and Rounded Leading Edge, Total Data Includes Void Area Listed Below

Scale Model = .004

DRAWING NUMBER:

VL70-000095DIMENSIONS:FULL-SCALEMODEL SCALETOTAL DATA

Area, FT^2	386.05	0.006
* Void (included above), FT^2	13.17	0.0002
Blanketed included above, FT^2	12.67	0.0002
Span (equivalent), FT	24.37	0.097
Aspect Ratio	1.590	1.590
Rate of Taper	0.507	0.507
Taper Ratio	0.426	0.426
Diehedral Angle, degrees	--	--
Incidence Angle, degrees	--	--
Aerodynamic Twist, degrees	--	--
Toe-In Angle	0.0	0.0
Cant Angle	0.0	0.0
Sweep Back Angles, degrees		
Leading Edge	45.000	45.000
Trailing Edge	26.249	26.249
0.25 Element Line	41.130	41.130
Chords:		
Root (Wing Sta. 0.0)	257.99	1.032
Tip, (equivalent)	109.78	0.439
MAC	193.84	0.775
Fus. Sta. of .25 MAC	1473.64	5.895
W.P. of .25 MAC	647.31	2.589
B.L. of .25 MAC	0.0	0.0
1 Airfoil Section		
Root		
Tip		

EXPOSED DATA

Area		
Span, (equivalent)		
Aspect Ratio		
Taper Ratio		
Chords		
Root		
Tip		
MAC		
Fus. Sta. of .25 MAC		
W.P. of .25 MAC		
B.L. of .25 MAC		

*Void area noted is the area located at lower aft portion of tail surface.

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: Wing W-87 New Light WeightGENERAL DESCRIPTION: Orbiter Configuration per lines VL70-000093Scale Model = .004DRAWING NUMBER: VL70-000093DIMENSIONS: FULL-SCALE MODEL SCALETOTAL DATA

Area, FT ² (W.R.P.)		
Planform	2689.38	0.043
Wetted	--	--
Span (equivalent), FT	77.12	0.308
Aspect Ratio	2.214	2.214
Rate of Taper	1.176	1.176
Taper Ratio	0.209	0.209
Dihedral Angle, degrees @ 75.33% element line	3.860	3.860
Incidence Angle, degrees @ .425% to 1.00%	3.000	3.000
Aerodynamic Twist, degrees	--	--
Toe-In Angle	--	--
Cant Angle	--	--
Sweep Back Angles, degrees		
Leading Edge	44.873	44.873
Trailing Edge	-10.242	-10.242
0.25 Element Line	35.050	35.050
Chords:		
Root (Wing Sta. 0.0)	690.19	2.761
Tip, (equivalent)	144.30	0.577
MAC	476.78	1.907
Fus. Sta. of .25 MAC	1136.12	4.544
W.P. of .25 MAC	289.44	1.158
B.L. of .25 MAC	181.03	0.724
Airfoil Section		
Root		
Tip		

EXPOSED DATA

Area, FT ²	1746.87	6.987
Span, (equivalent), FT	59.16	0.237
Aspect Ratio	2.004	2.004
Taper Ratio	0.256	0.256
Chords		
Root	562.77	2.251
Tip	144.30	0.577
MAC	394.81	1.579
Fus. Sta. of .25 MAC	1185.17	4.741
W.P. of .25 MAC	291.56	1.166
B.L. of .25 MAC	250.54	1.002
LEADING EDGE CUFF (data for (1) side)		
Plan form area, FT ² (BP 108.0)	120.333	0.0019
L.E. Intersect Fus ML @ STA	560.0	2.240
L.E. Intersects Wing @ STA	1035.0	4.140

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Continued)

MODEL COMPONENT: EXTERNAL TANK - T17GENERAL DESCRIPTION: External Tank per NR Control VL78-000011BDRAWING NUMBER: VL78-000011B

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length, in.	<u>1865</u>	<u>7.460</u>
Max. Width (Dia), in.	<u>324.0</u>	<u>1.296</u>
Max. Depth	<u> </u>	<u> </u>
Fineness Ratio, L/D	<u>5.75617</u>	<u>5.75617</u>
Area, Ft ²		
Max. Cross-Sectional	<u>572.56</u>	<u>0.009161</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>

TABLE III. MODEL COMPONENT DIMENSIONAL DATA (Concluded)

MODEL COMPONENT: BOOSTER SOLID ROCKET MOTOR - S16GENERAL DESCRIPTION: Configuration 3A, Data for (1) of (2) sides, per Rockwell
Lines VL77-000036ADRAWING NUMBER: VL72-000088A
VL77-000036A

<u>DIMENSIONS:</u>	<u>FULL-SCALE</u>	<u>MODEL SCALE</u>
Length (Includes Nozzle), in.	<u>1741.0</u>	<u>6.9640</u>
Max. Width (Tank Dia), in.	<u>142.3</u>	<u>0.5692</u>
Max. Depth (Aft Shroud), in.	<u>192.0</u>	<u>0.7680</u>
Fineness Ratio, L/D	<u>8.06771</u>	<u>9.06771</u>
Area, Ft ²		
Max. Cross-Sectional	<u>201.06193</u>	<u>0.00322</u>
Planform	<u> </u>	<u> </u>
Wetted	<u> </u>	<u> </u>
Base	<u> </u>	<u> </u>
WP of BSRM Centerline (Z _T), in.	<u>490</u>	<u>1.6000</u>
FS of BSRM Nose (X _T), in.	<u>200</u>	<u>0.8000</u>

TABLE IV. X-COORDINATES OF STRUT LEADING AND TRAILING EDGE INTERSECTIONS WITH BODY PROFILES

Strut	Position	Leading Edge	Trailing Edge
M1 ₁	Forward	X _t = 711	X _t = 1735
M1 ₂	Aft	X _t = 1028	X _t = 2052
M2 ₁	Forward	X _s = 388	X _s = 1412
M2 ₂	Aft	X _s = 772	X _s = 1796

TABLE V. WING PRESSURE ORIFICE LOCATIONS*

ORIFICE NO.	WING SURFACE	LOCATION	
		% CHORD	% SEMISPAN
23	Upper	10.7	50.0
24	Upper	30.0	49.8
25	Upper	49.1	51.1
26	Upper	70.0	49.5
27	Upper	90.7	50.6
28	Upper	50.6	34.4
29	Upper	50.7	64.1
30	Upper	50.4	78.5
31	Lower	7.2	52.5
32	Lower	28.0	52.5
33	Lower	49.0	52.1
34	Lower	69.0	52.4
35	Lower	48.9	38.5
36	Lower	48.8	66.0
37	Lower	48.5	79.7

*Refer to Drawing VL 70-000093

TABLE VI. NOMINAL LOCATIONS, ORBITER BASE PRESSURE ORIFICES

Measurement Number	Orifice Location			
	Full Scale		Model Scale	
	Y _o	Z _o	Y _o	Z _o
1	0	493	0	1.972
2	-106	492	-.424	1.968
3	-92.5	400	-.370	1.600
4	0	304.8	0	1.219

TABLE VII. NOMINAL LOCATIONS OF EXTERNAL TANK PRESSURE ORIFICES

Measurement Number	Angular Displacement (degrees)	Radial Distance (inches)
5	0	0.648
6	0	0.324
7	0	0
8	180	0.324
9	180	0.648
10	135	0.648
11	135	0.324
12	90	0.324
13	45	0.324
14	45	0.648
15	90	0.648

TABLE VIII. NOMINAL LOCATIONS OF SOLID ROCKET BOOSTER PRESSURE ORIFICES

Measurement Number	Angular Displacement (degrees)	Radial Distance (inches)
16	0	0
17	90	.334
18	270	.334
19	0	.142
20	180	.142
21	90	.142
22	270	.142

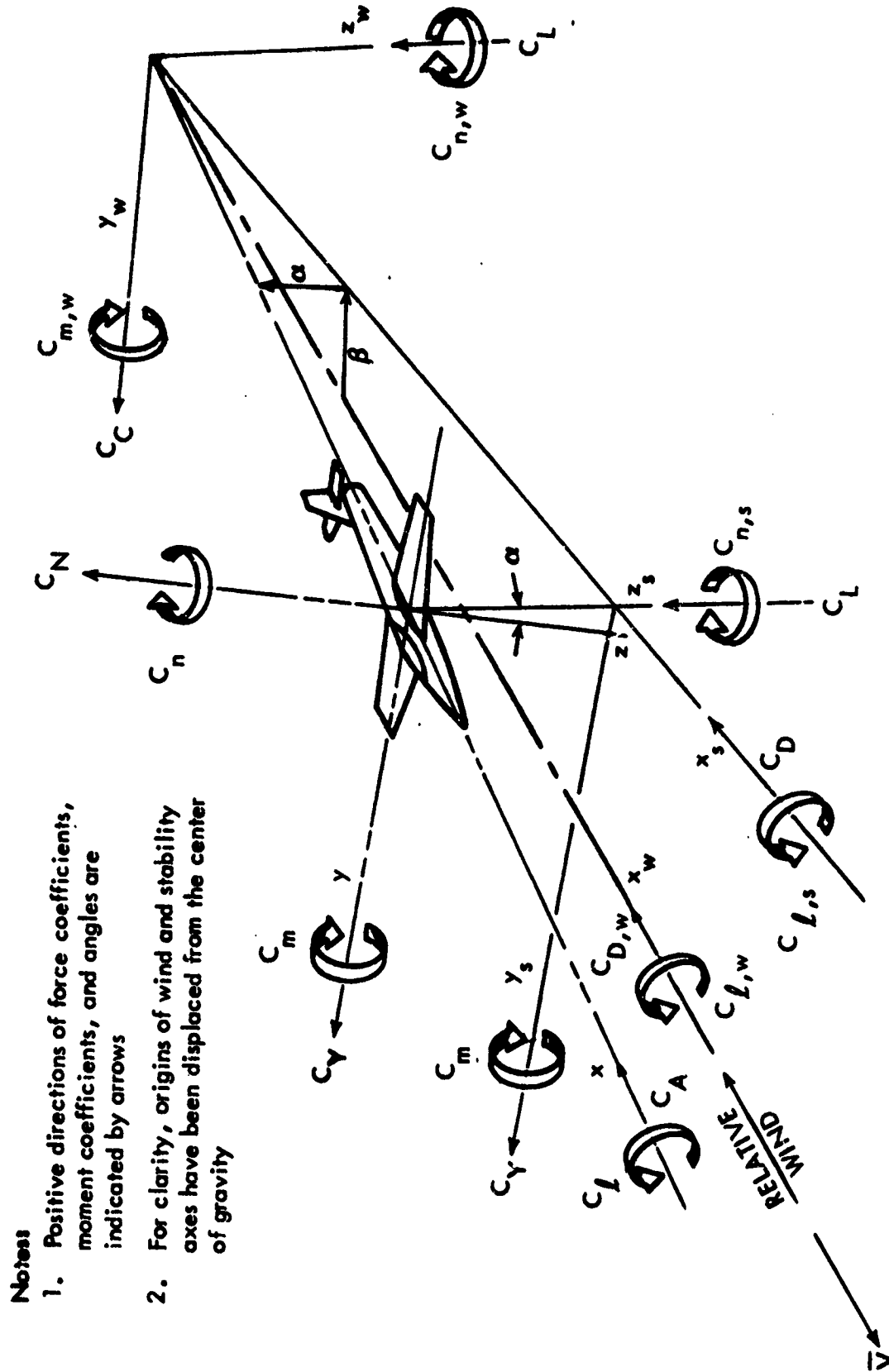


Figure 1. Axis System

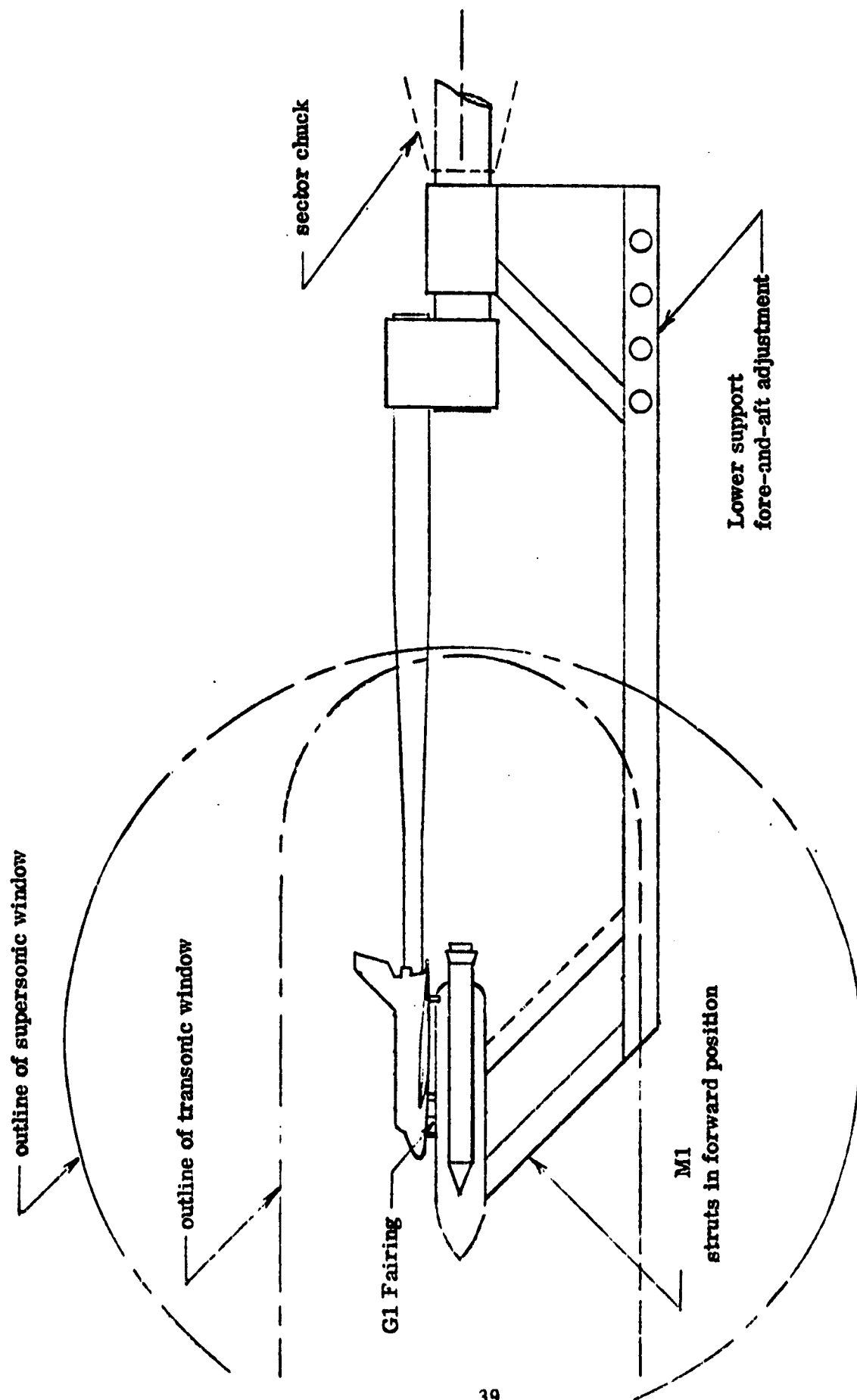


Figure 2 - Model and Support Installation in MSFC 14" X 14" Trisonic Wind Tunnel

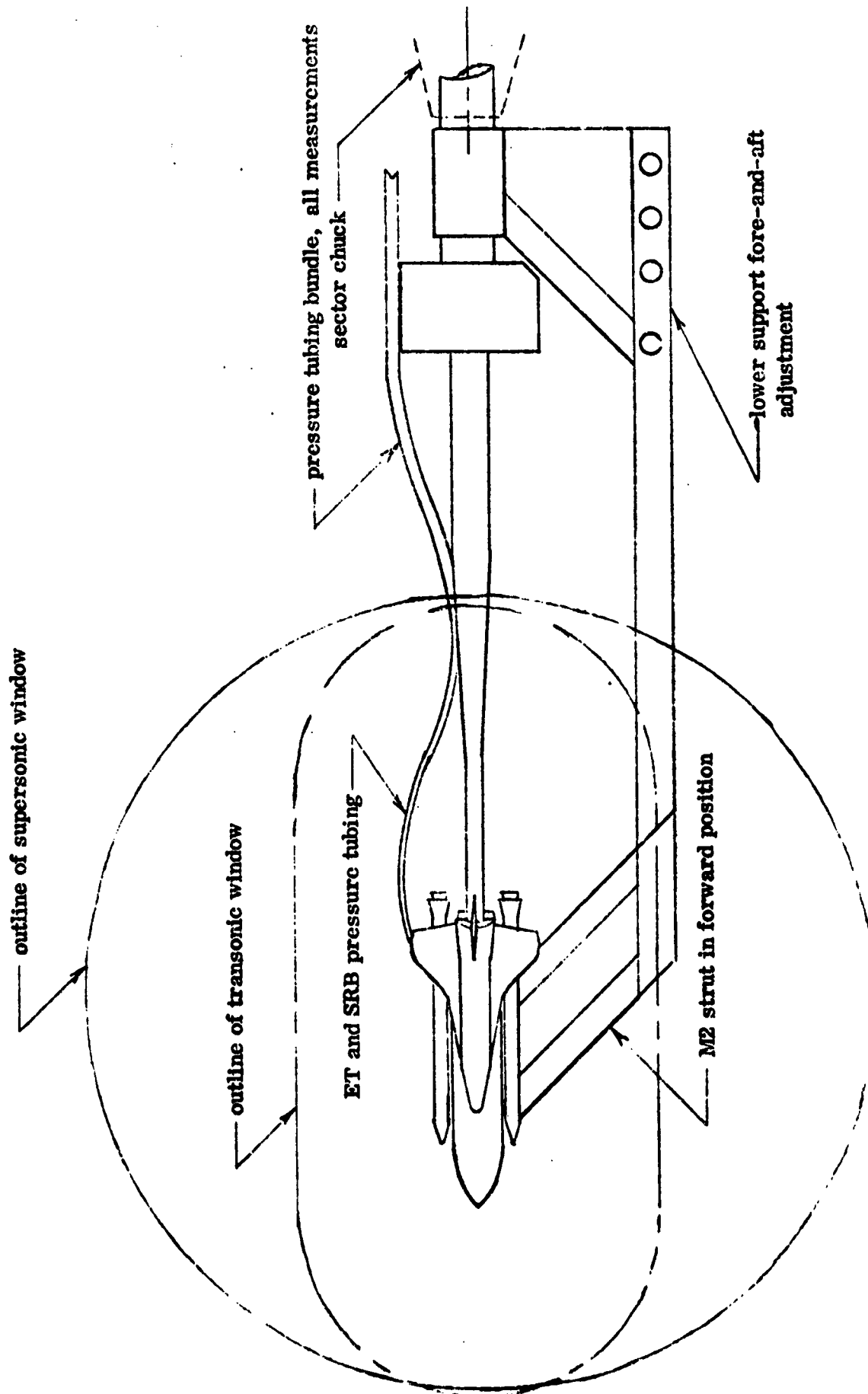


Figure 3 - Model and Support Installation in MSFC 14" X 14" Transonic Wind Tunnel, Single Strut Mounted to SRE

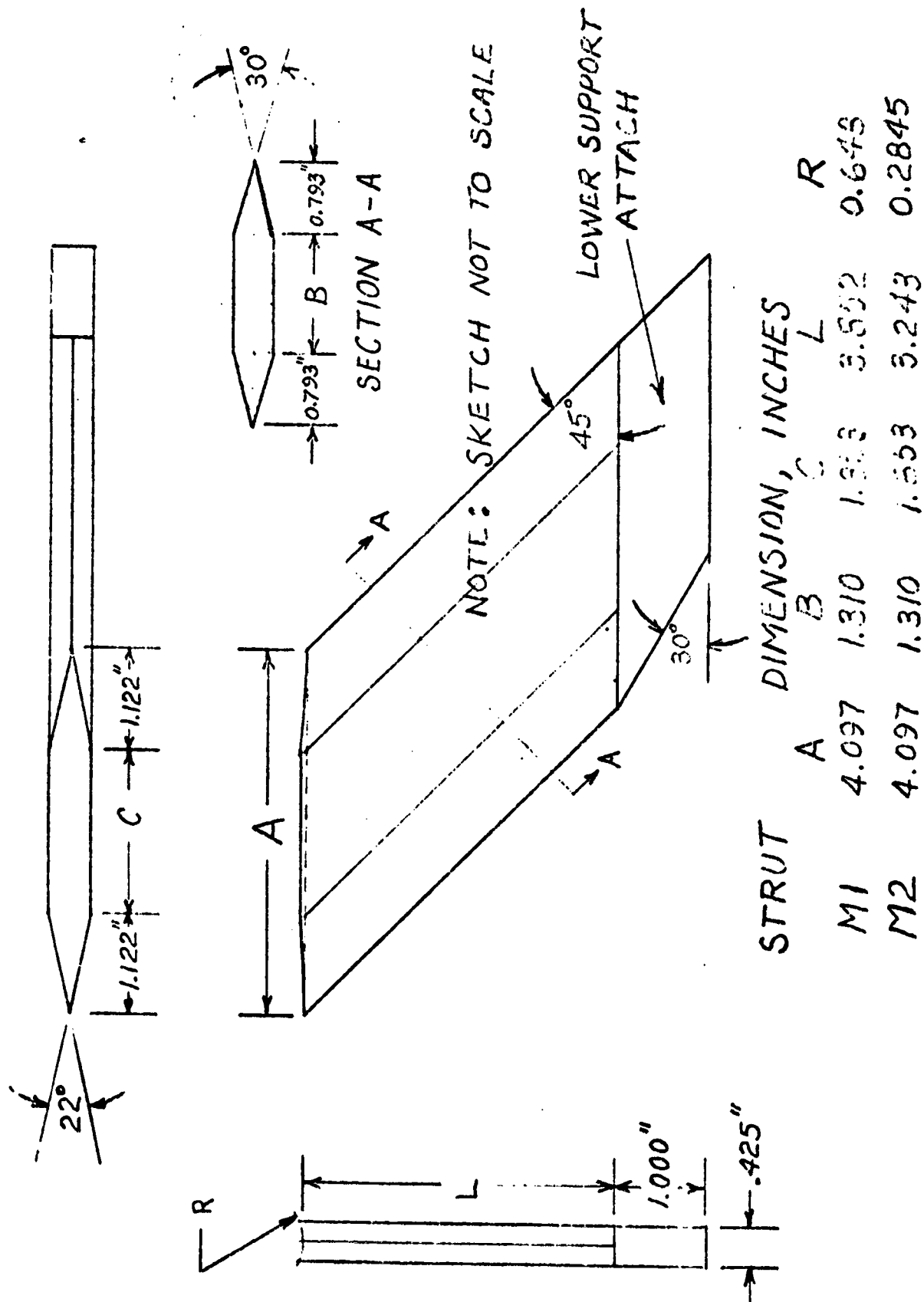


Figure 4 - Strut M1, and M2 Configurations and Dimensional Data

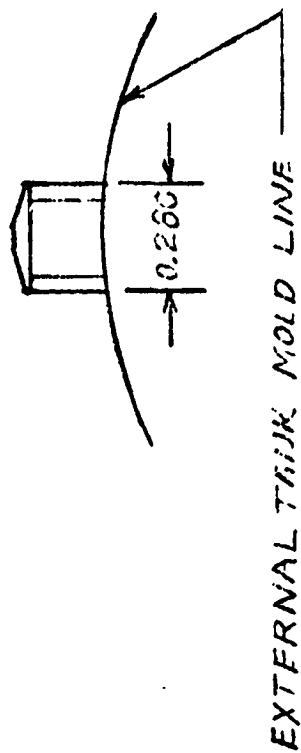
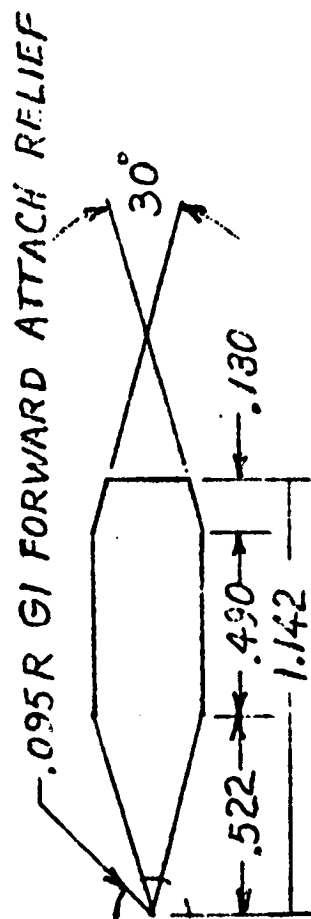
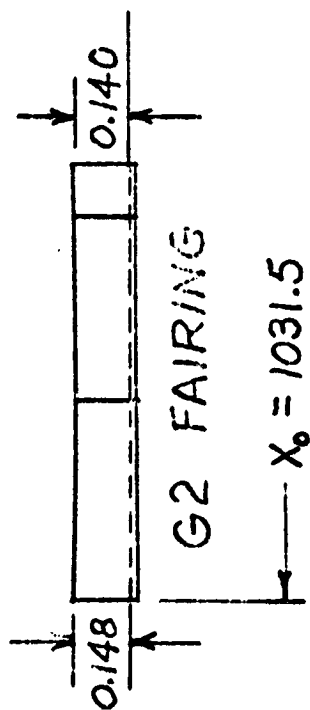
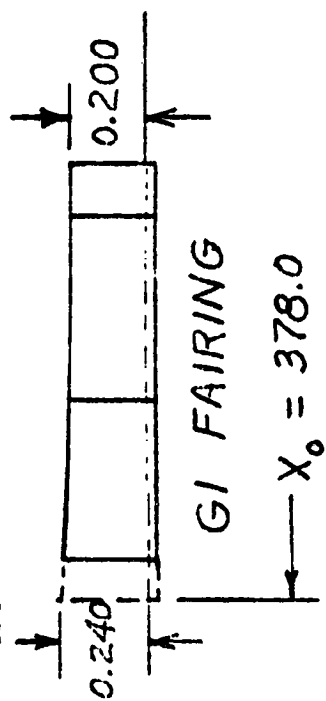


Figure 5. - G1 (Forward) and G2 (Aft) Orbiter/ET Gas Supply Fairings

Pressure Tap Numbering:

- Orbiter Base 1-4
- External Tank Base 5-15
- Solid Rocket Booster 16-22
- Orbiter Wing Upper 23-30
- Orbiter Wing Lower 31-37

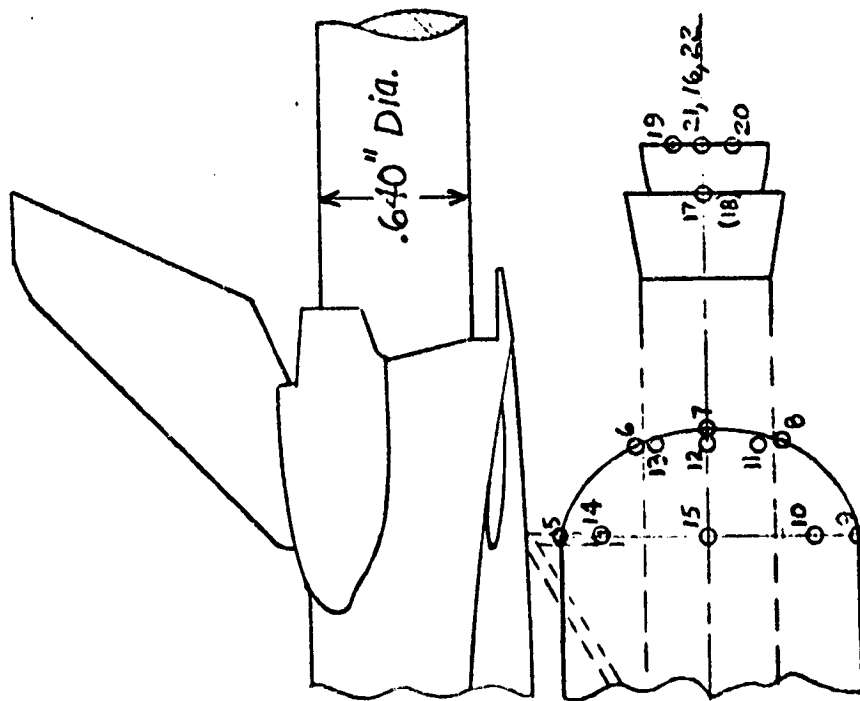
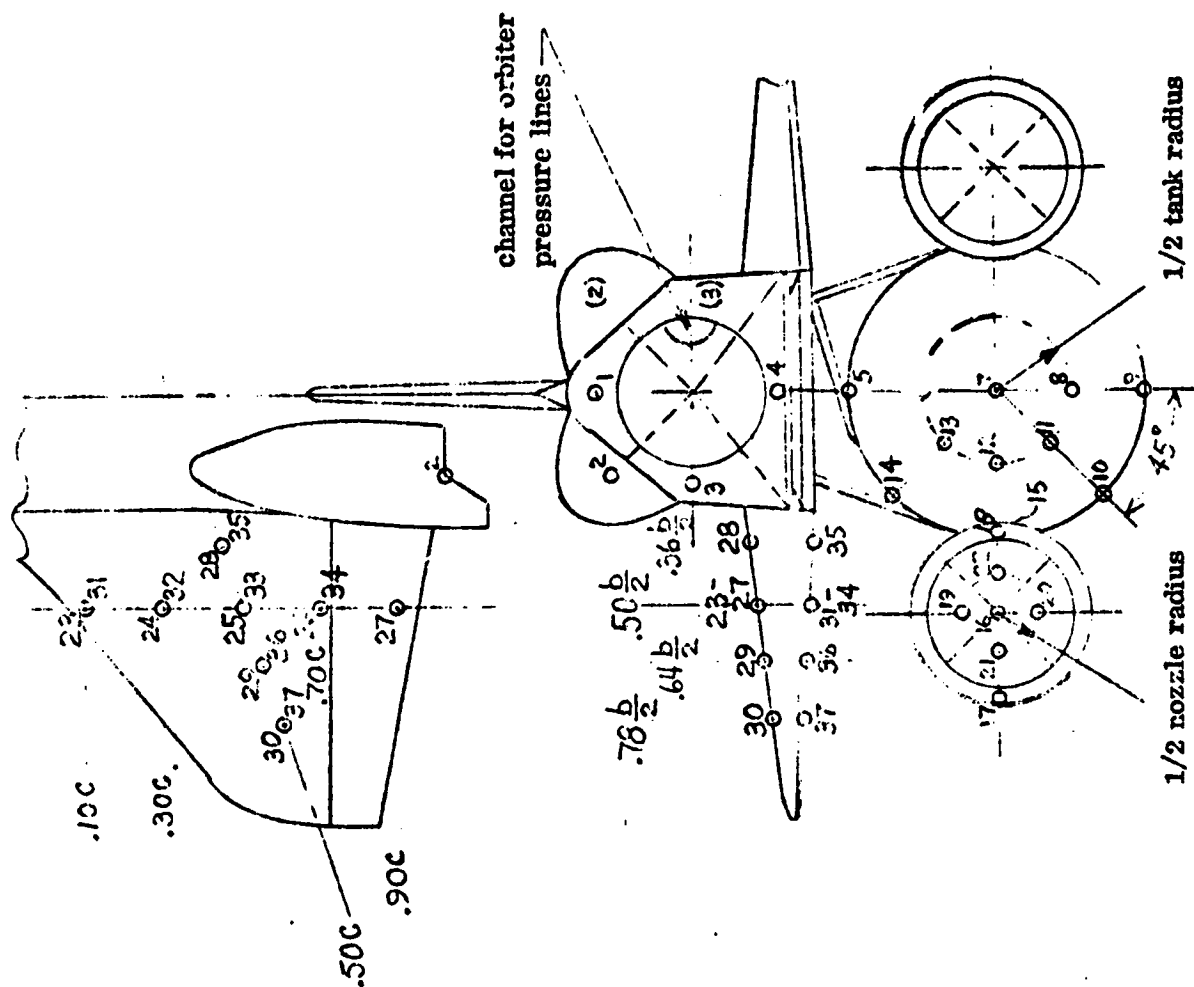
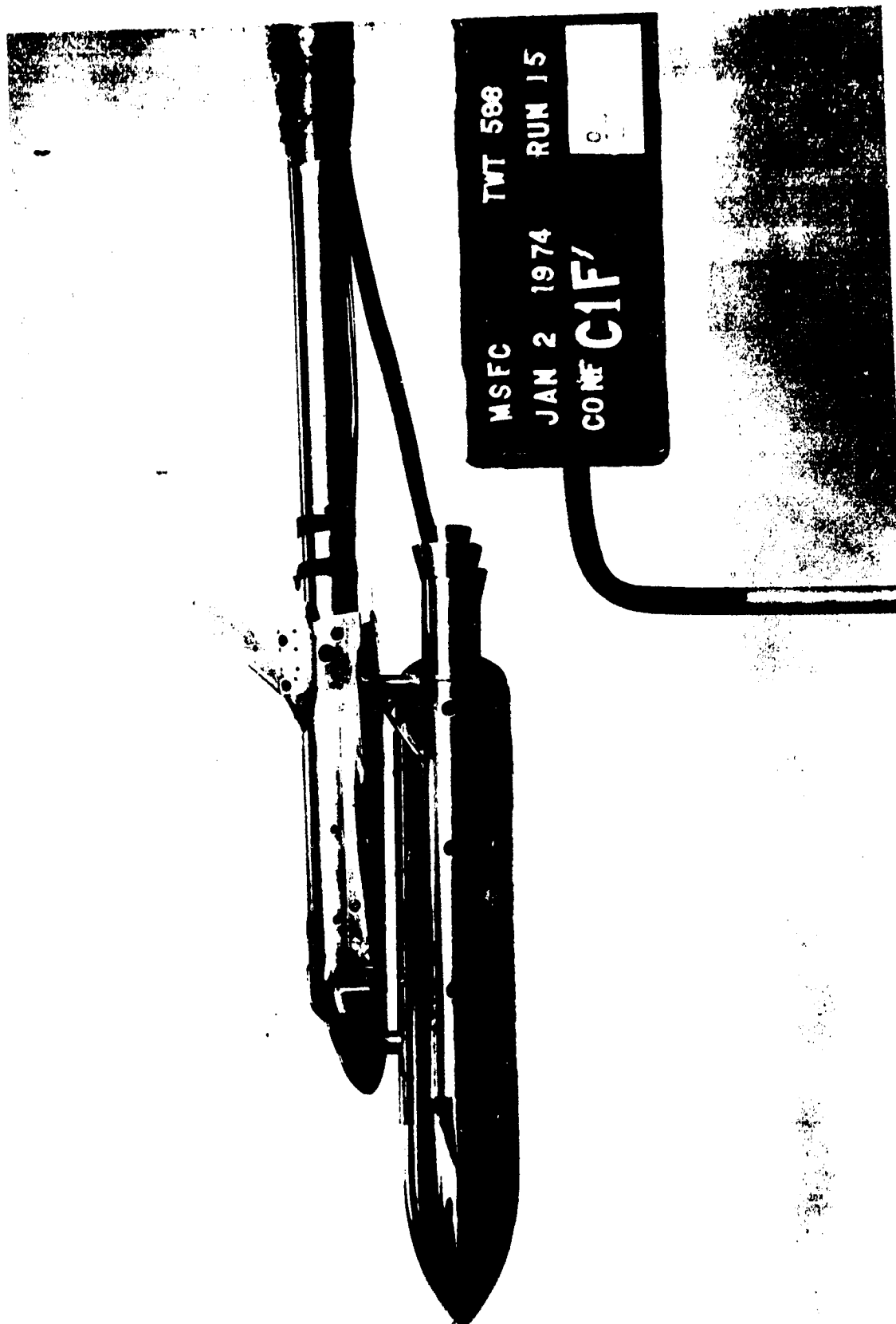


Figure 6 - Nominal Pressure Tap Locations and Numbering Scheme

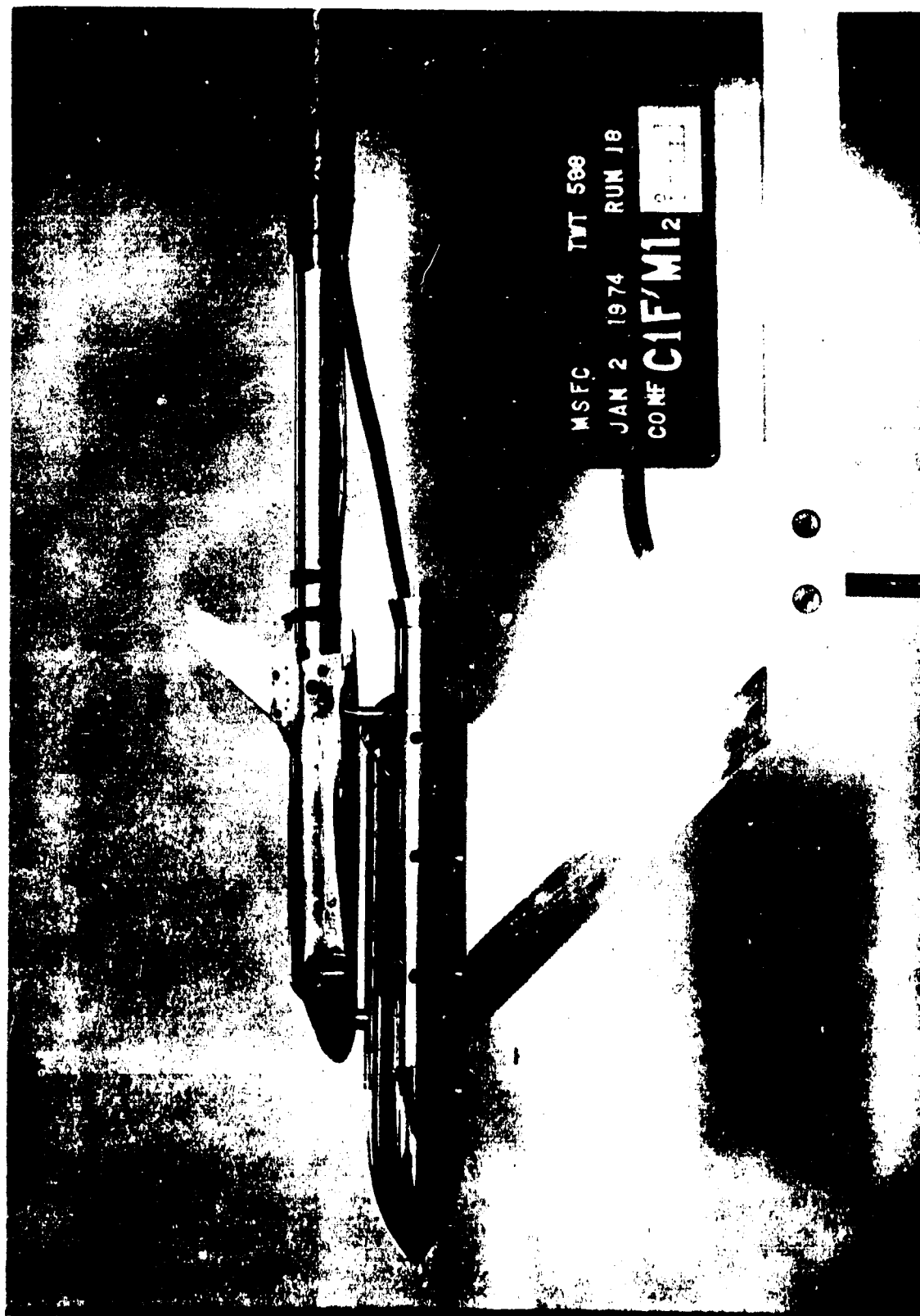


a) Configuration ClF¹
Figure 7. Tunnel Installation Photographs

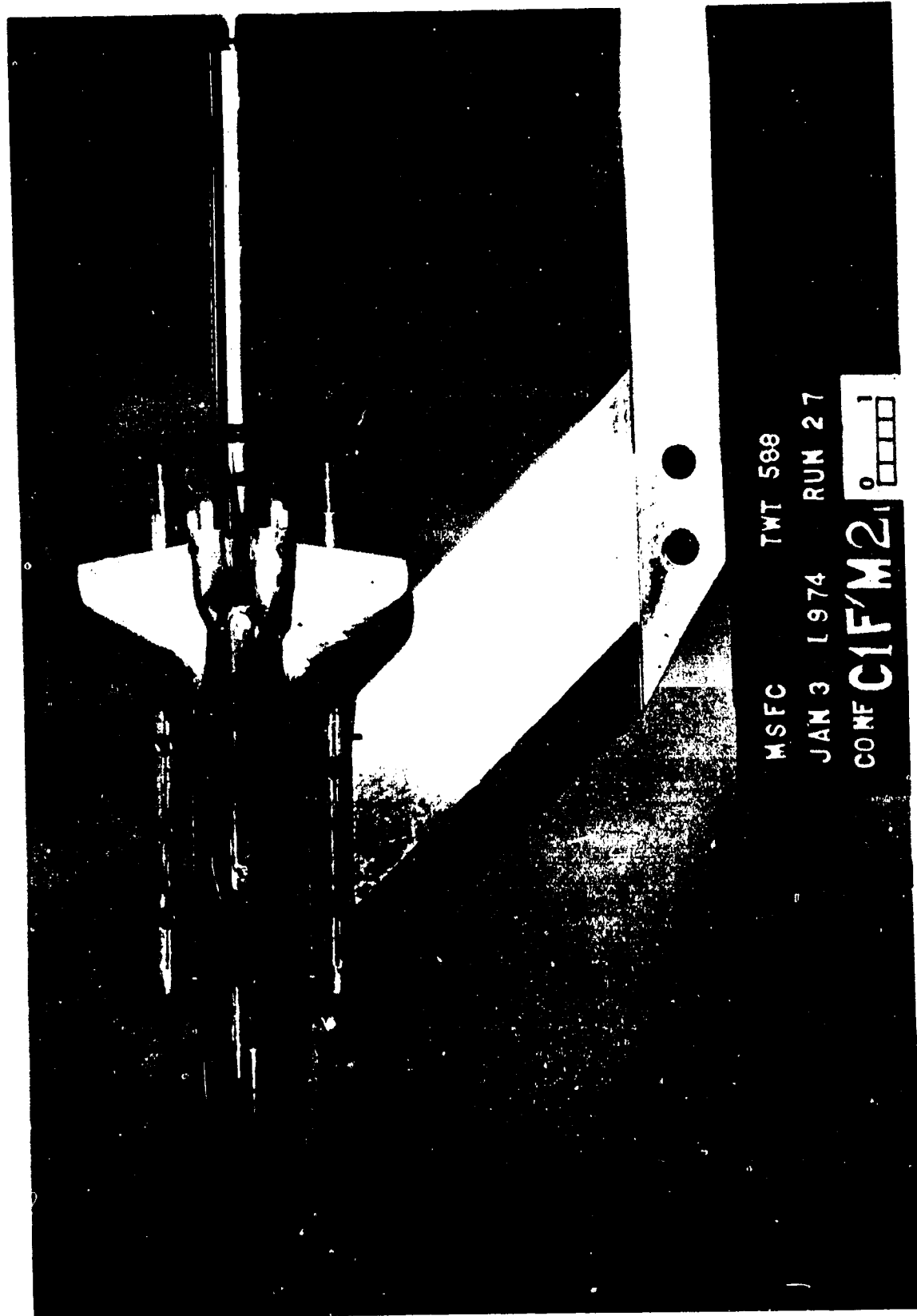


b) Configuration CLF¹MI₁

Figure 7. Continued



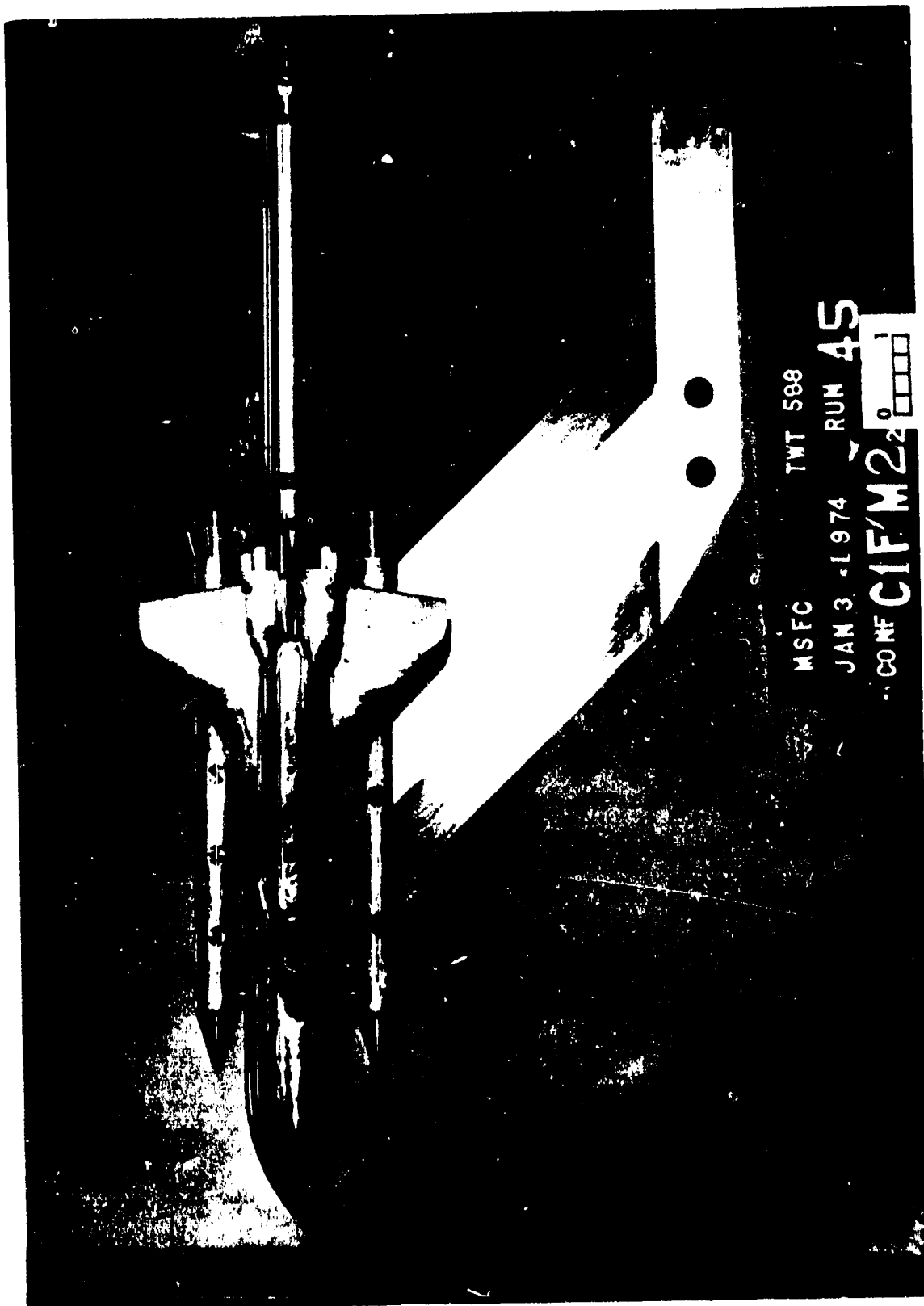
c) Configuration ClF¹M12
Figure 7. Continued



MSFC TWT 588
JAN 3 1974 RUN 27
CONF C1F'M2₁

d) Configuration C1F'M2₁

Figure 7. Continued



e) Configuration C1F1M22

Figure 7. Continued



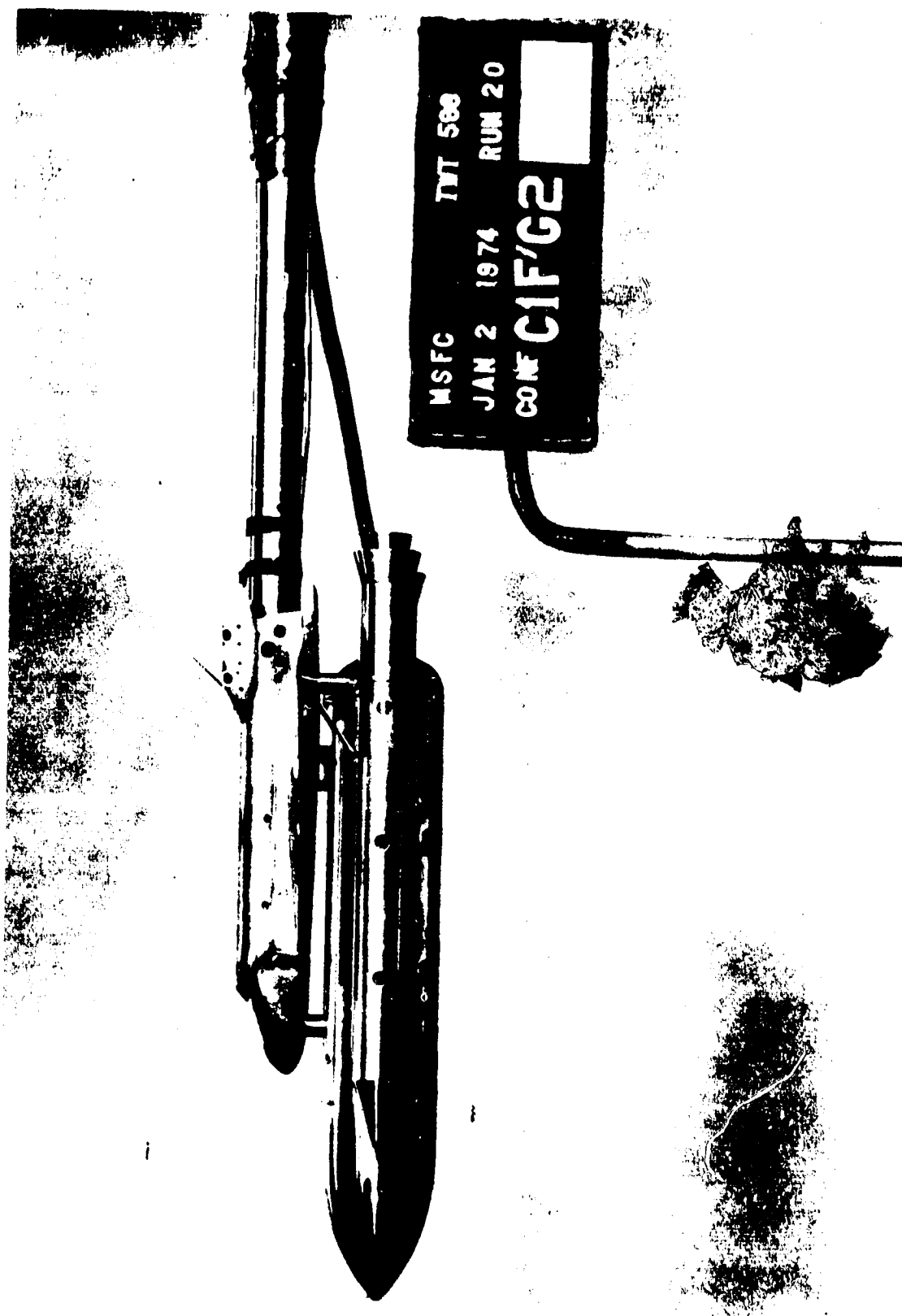
MSFC TWT 588

JAN 2 1974 RUN 19

CONF C1F/G1

f) Configuration C1F¹G1

Figure 7. Continued



g) Configuration CIF¹G2

Figure 7. Concluded

DATA FIGURES

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(896003)
(896004)
(896005)

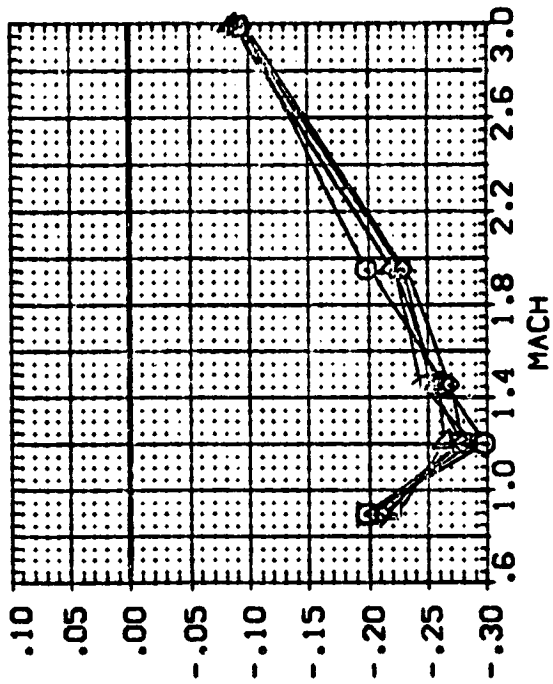
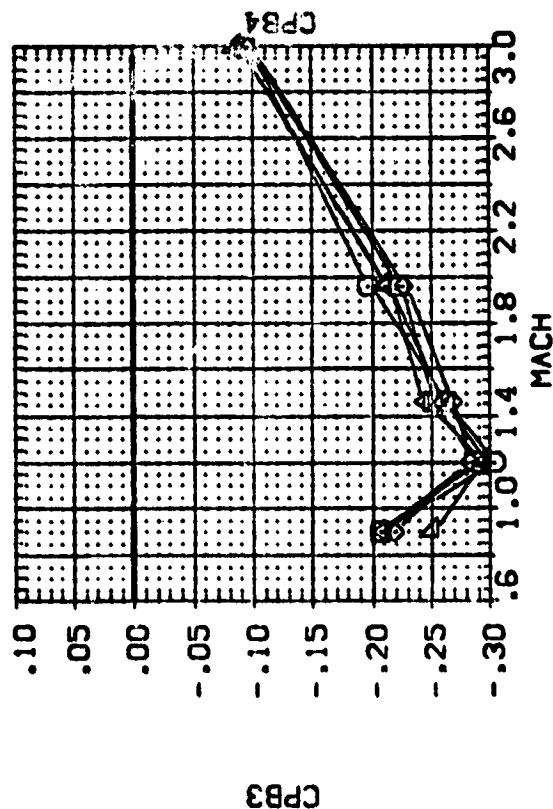
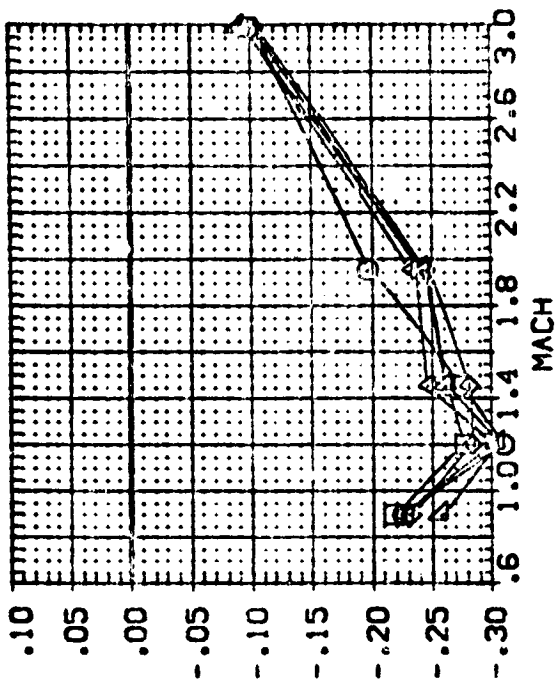
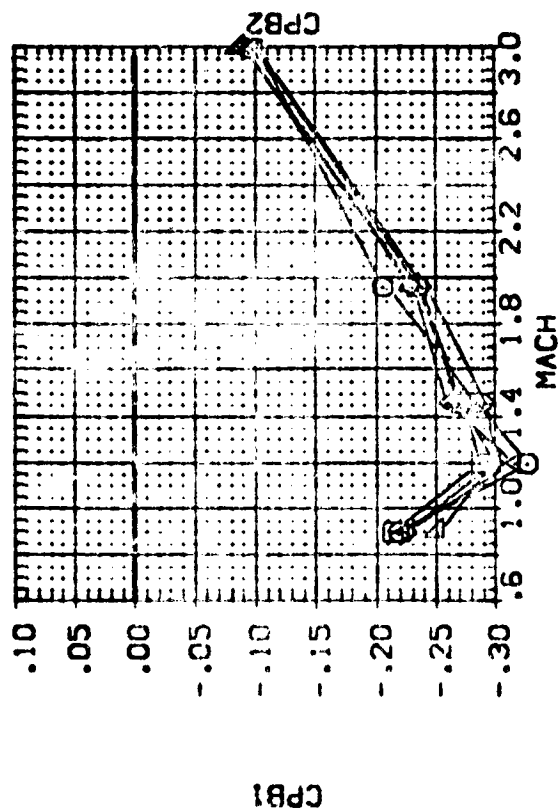
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ZMRP	.0000	IN	IN
SCALE	.0000		



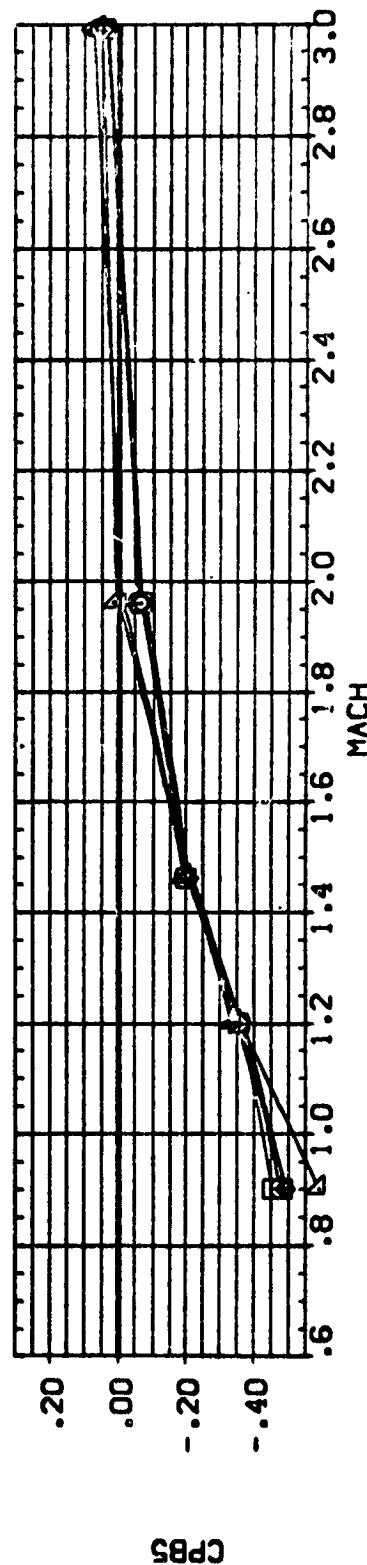
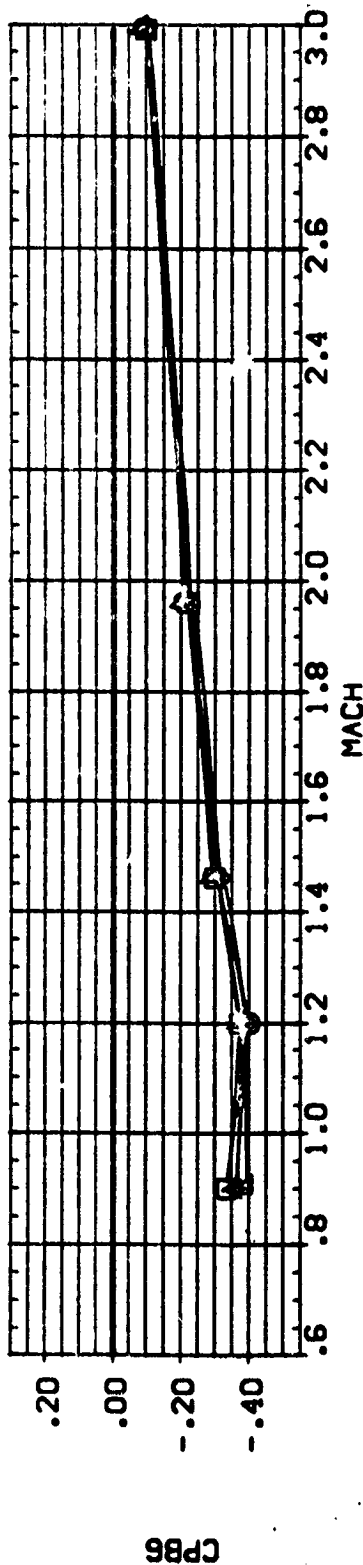
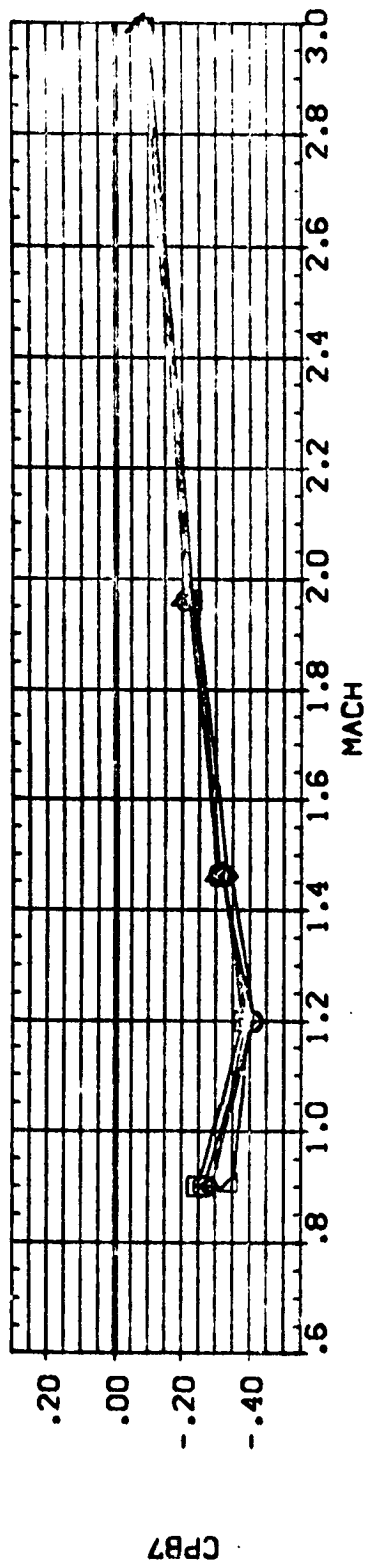
STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

$$[A]_{\text{ALPHA}} = .00$$

PAGE 1

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(B96102)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M1/1)	.000	.000	.000	LREF 5.3130 IN.
(B96103)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M1/2)	.000	.000	.000	EREF 5.3130 IN.
(B96104)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M2/1)	.000	.000	.000	XRFP .0000 IN.
(B96105)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M2/2)	.000	.000	.000	YRFP .0000 IN.
					ZRFP .0000 IN.
					SCALE .0000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

(A) ALPHA = .00

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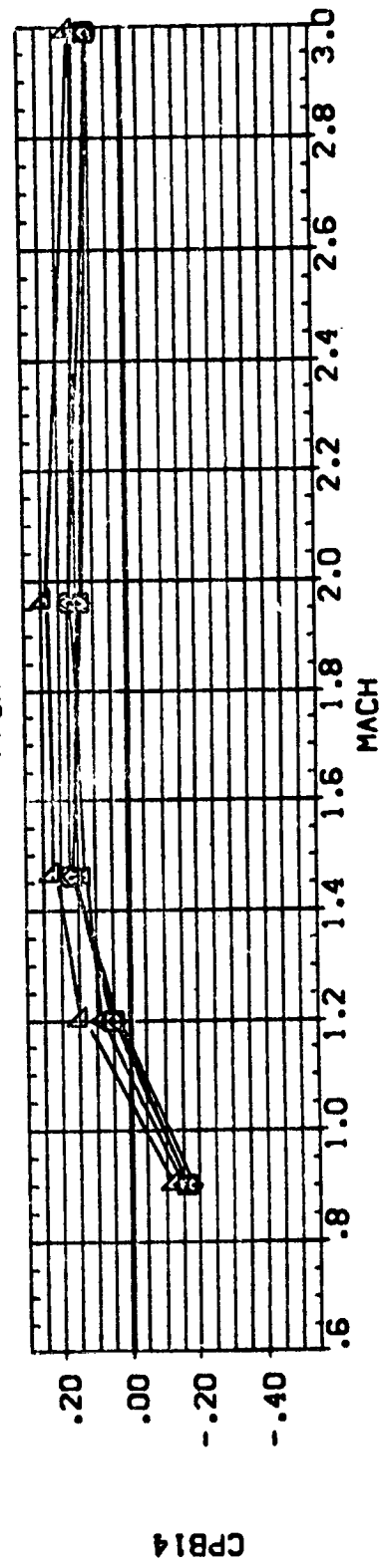
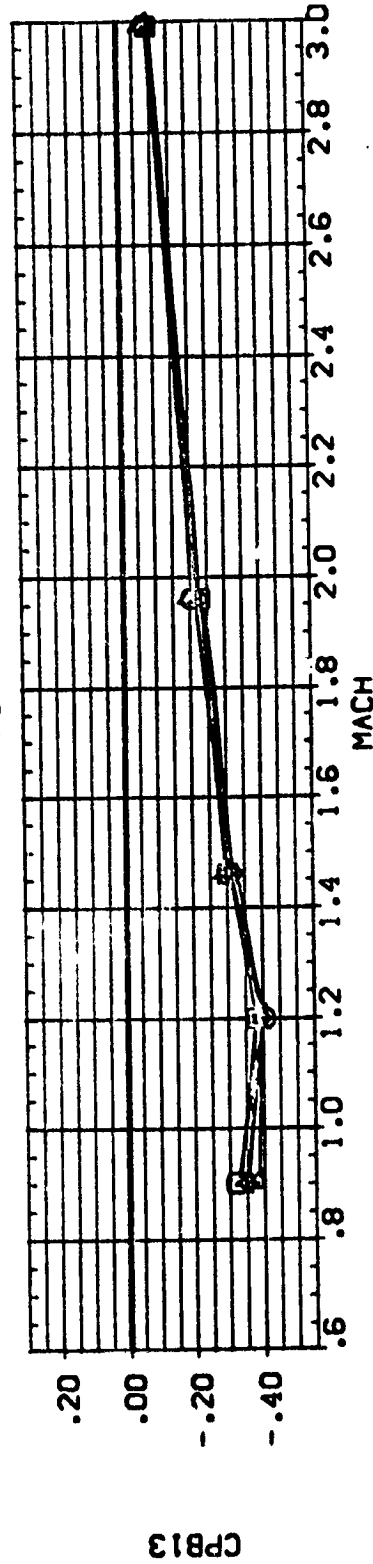
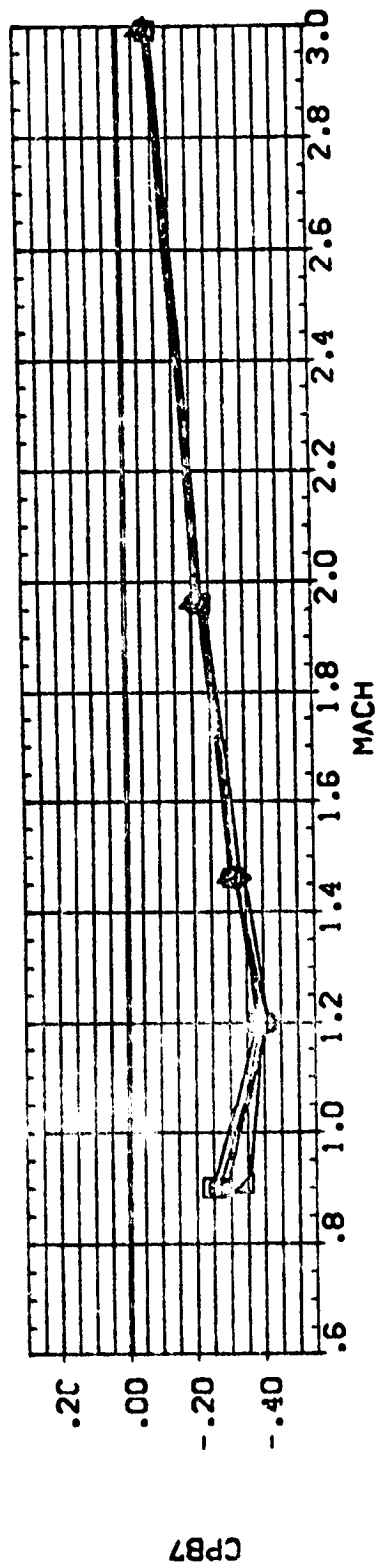
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

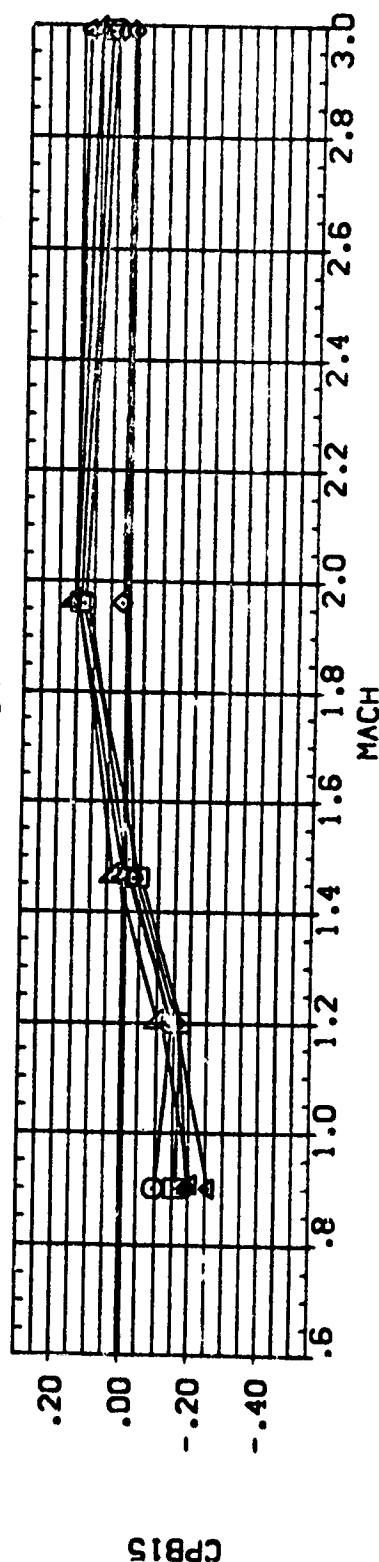
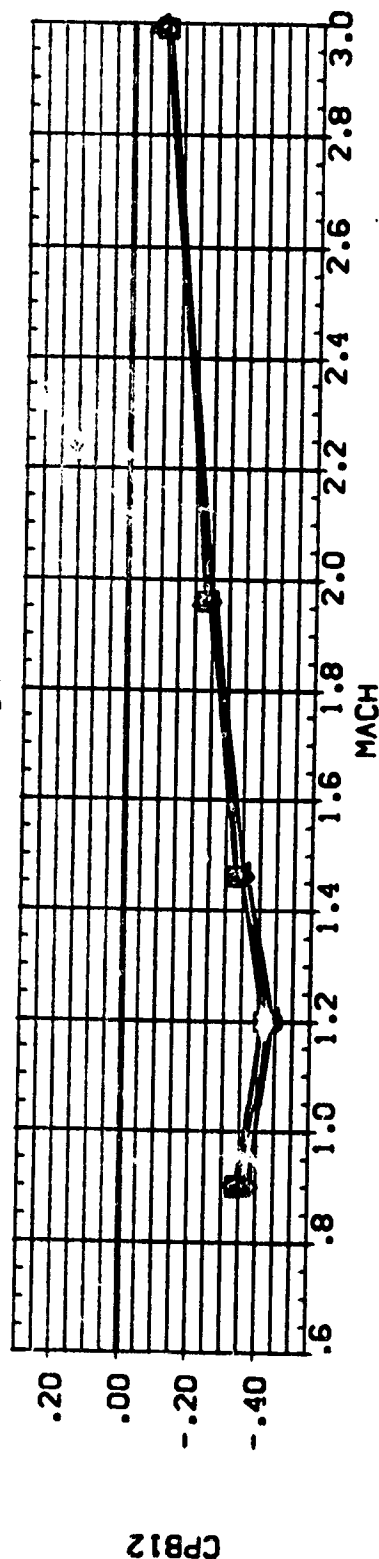
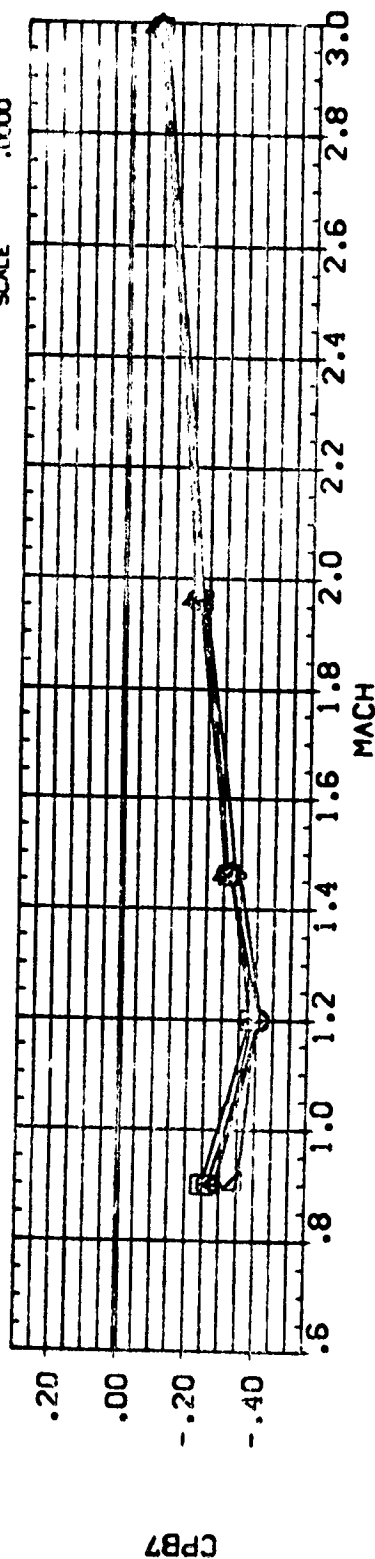
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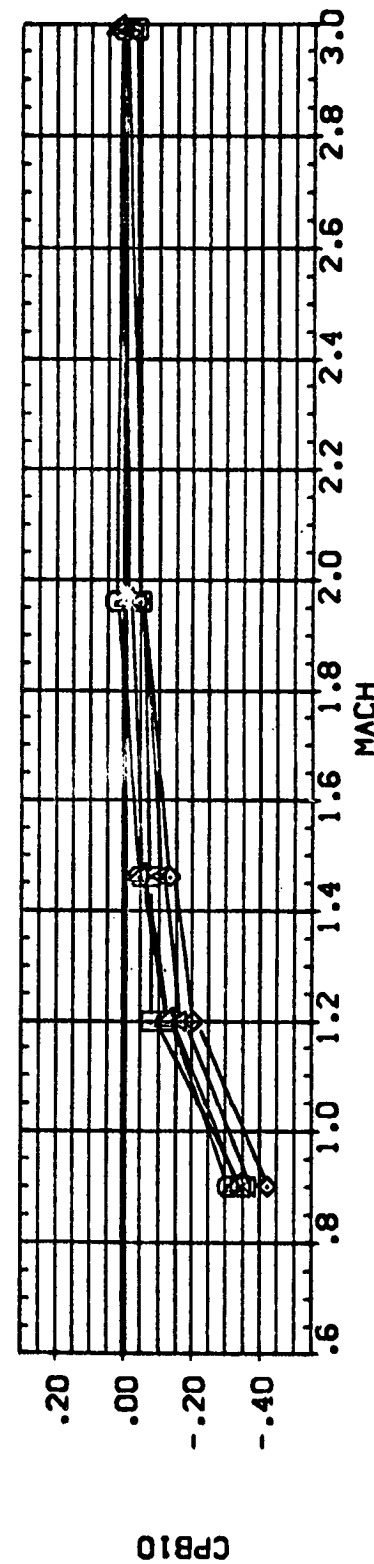
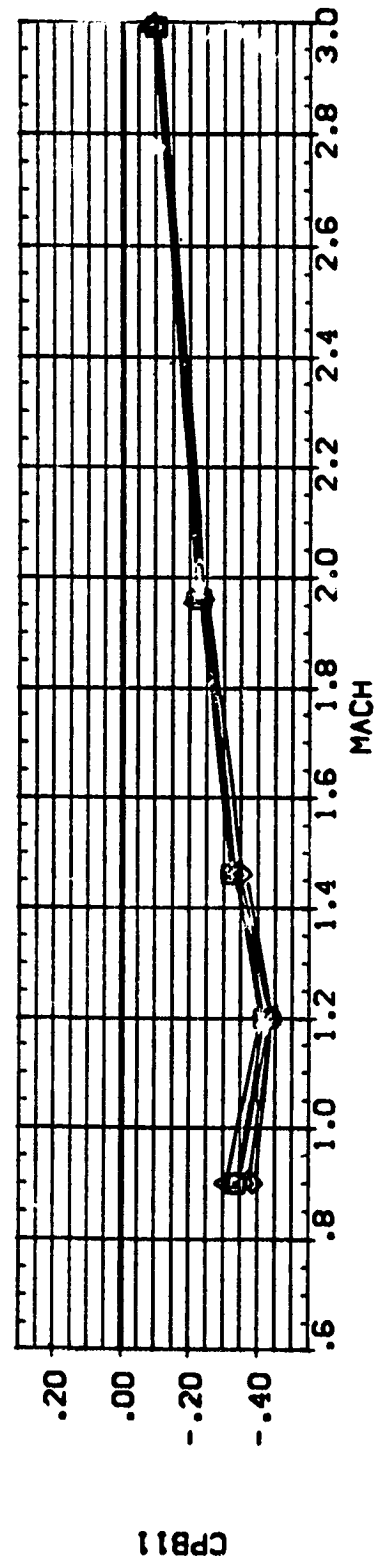
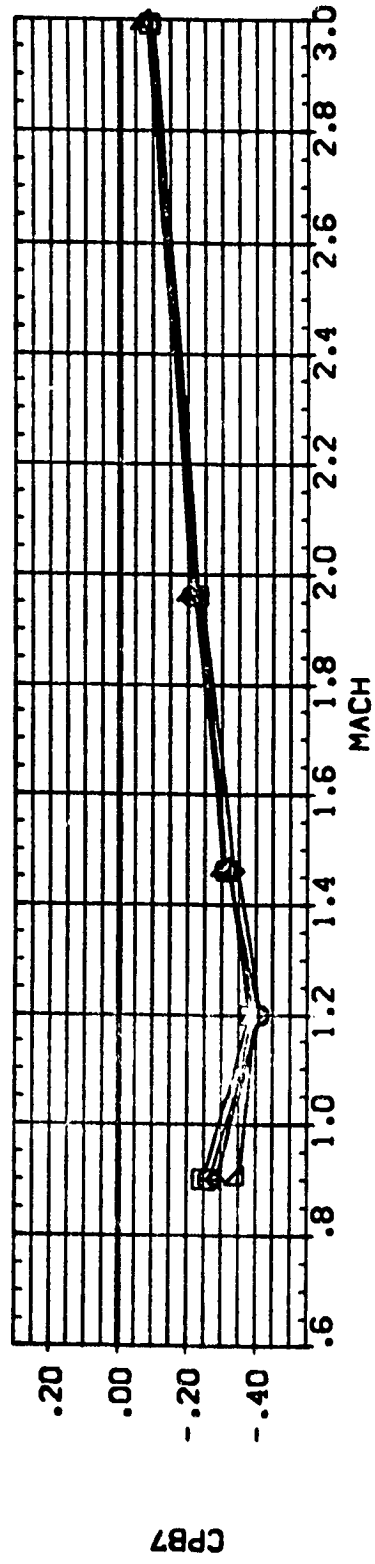
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

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[B96203]	MSC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000	BREF	5.3130	IN.
[B96204]	MSC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000	XMRP	.0000	IN.
[B96205]	MSC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000	YMRP	.0000	IN.
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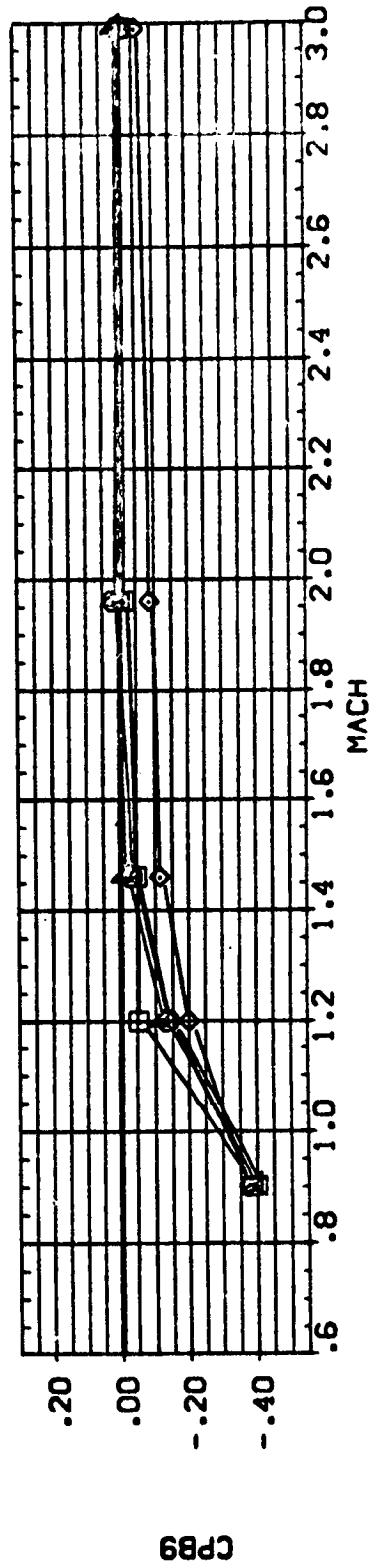
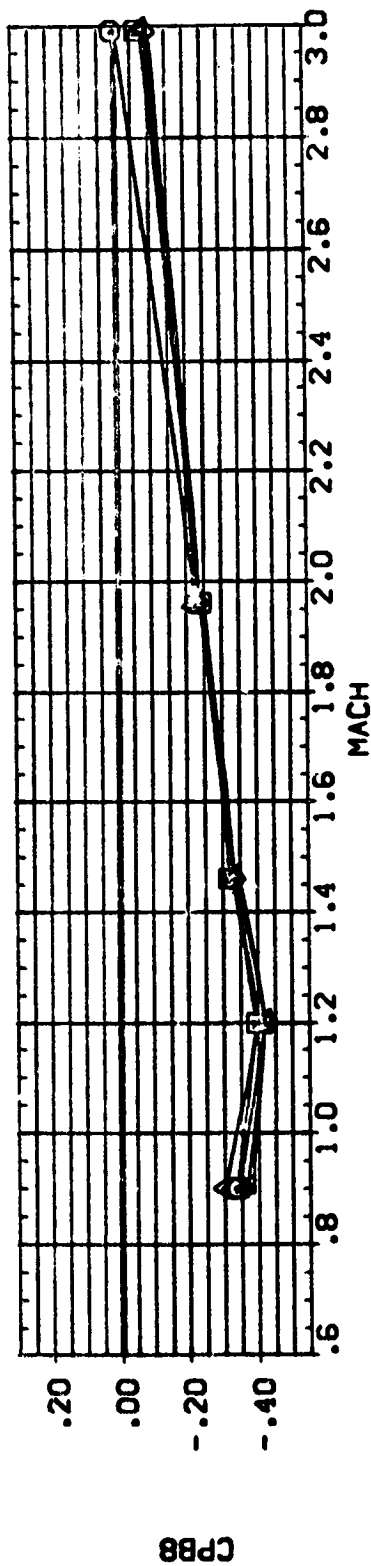
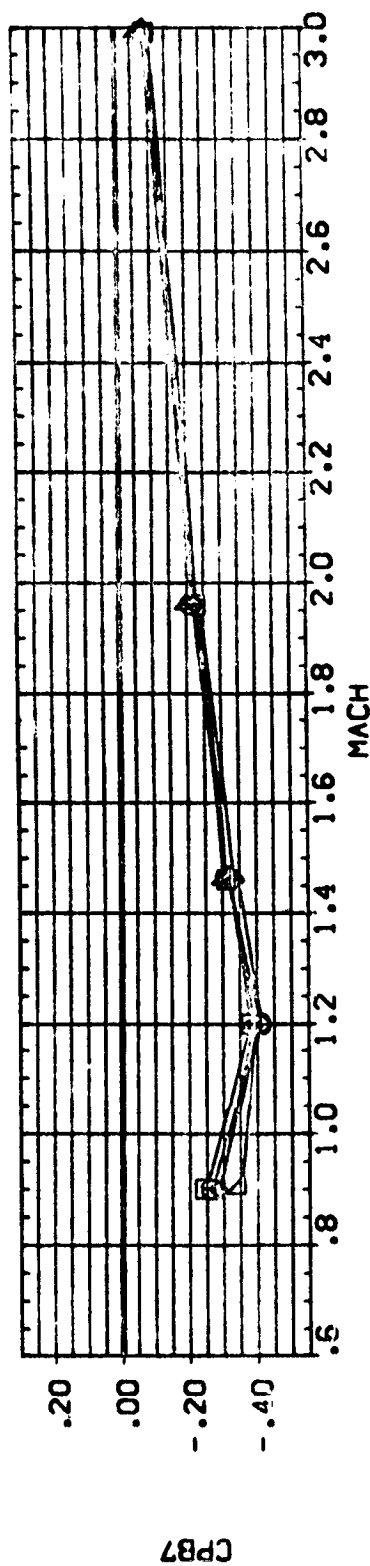


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

(ALPHA = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI	REFERENCE INFORMATION
[B96201]	MSFC 588(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000	SREF 6.1980
[B96202]	MSFC 588(A53) GAS SUPPLY STRUT (C1F/1) M1/1	.000	.000	.000	LREF 5.3130
[B96203]	MSFC 588(A53) GAS SUPPLY STRUT (C1F/1) M1/2	.000	.000	.000	BREF 5.3130
[B96204]	MSFC 588(A53) GAS SUPPLY STRUT (C1F/1) M2/1	.000	.000	-90.000	XMRP .0000
[B96205]	MSFC 588(A53) GAS SUPPLY STRUT (C1F/1) M2/2	.000	.000	-90.000	YMRP .0000
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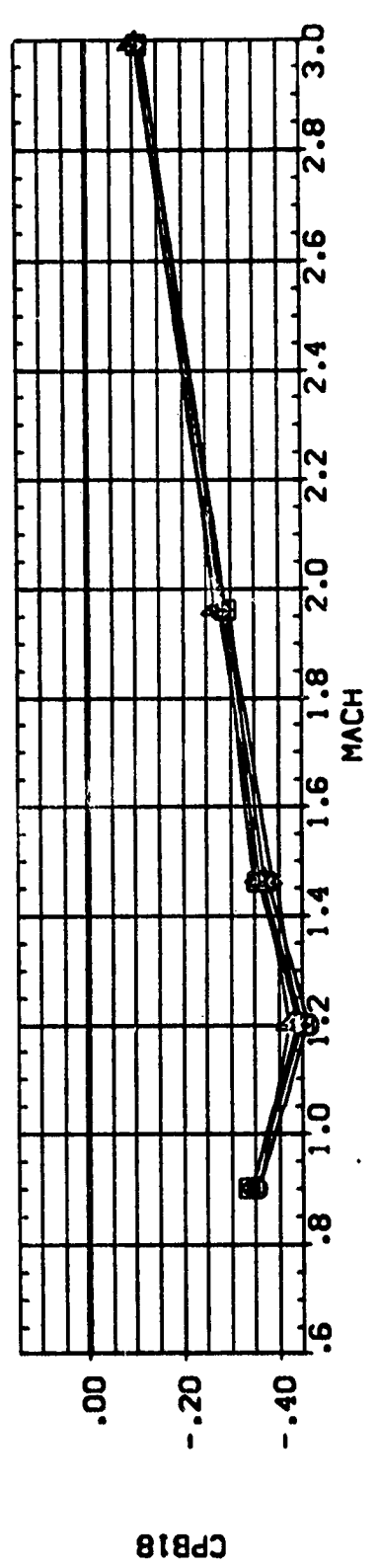
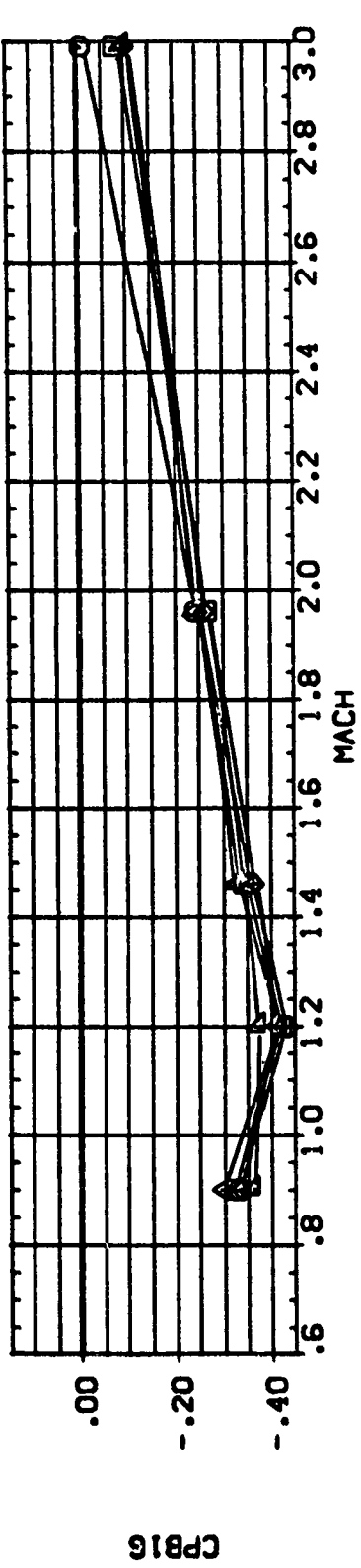
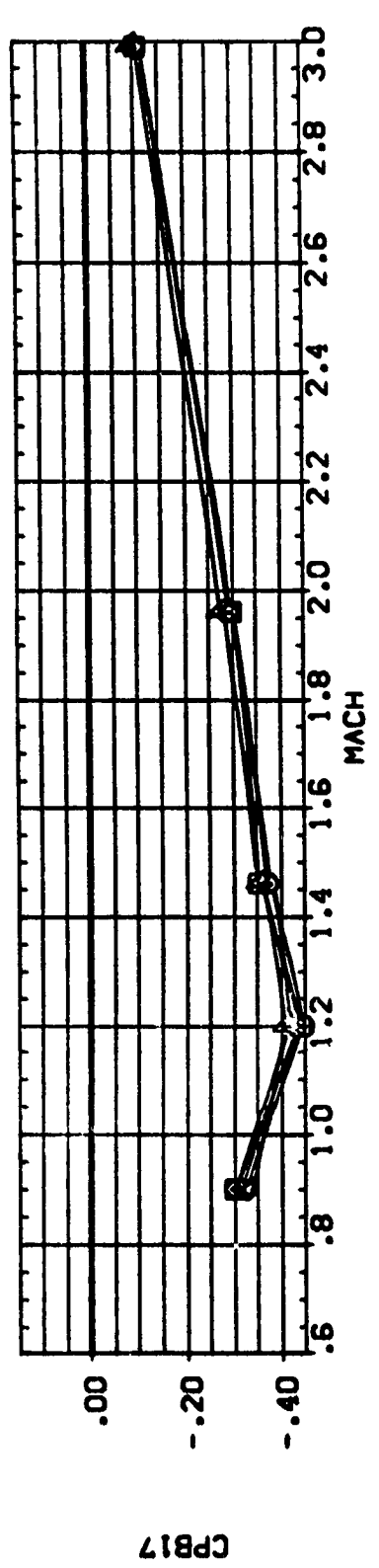


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

(A) ALPHA = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI REFERENCE INFORMATION

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[B96303]	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000	BREF 5.3130	IN.
[B96304]	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000	XMRP .0000	IN.
[B96305]	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000	YMRP .0000	IN.
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

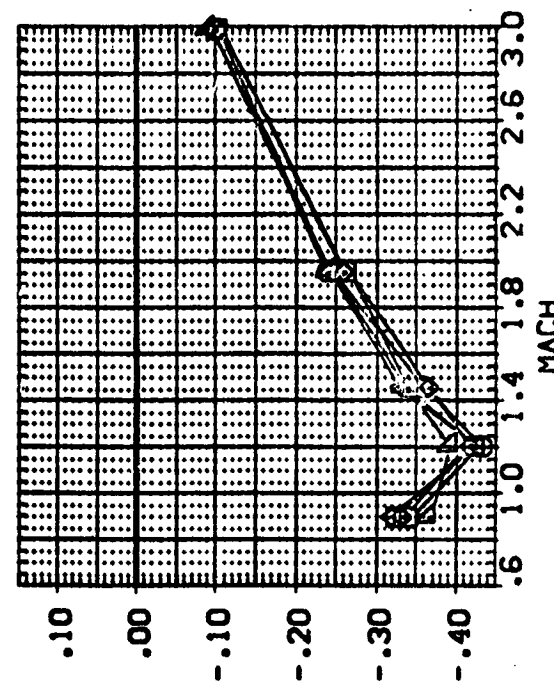
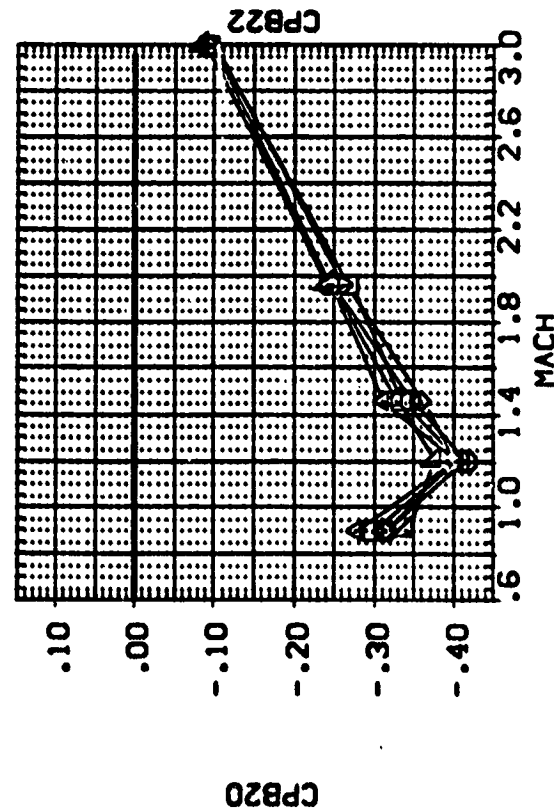
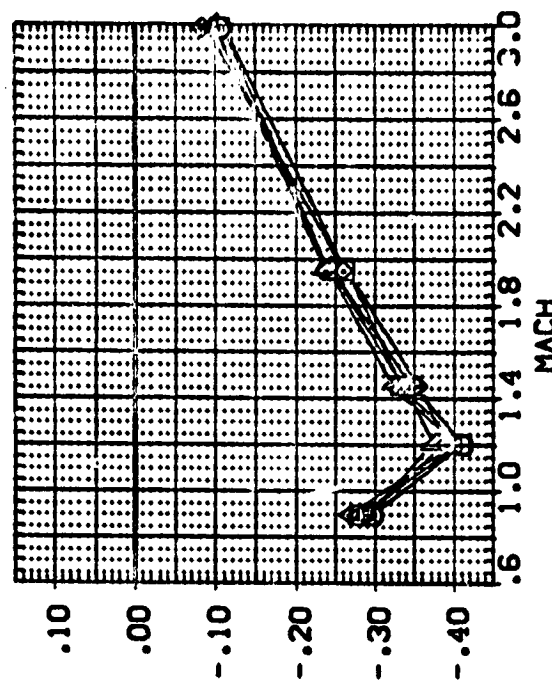
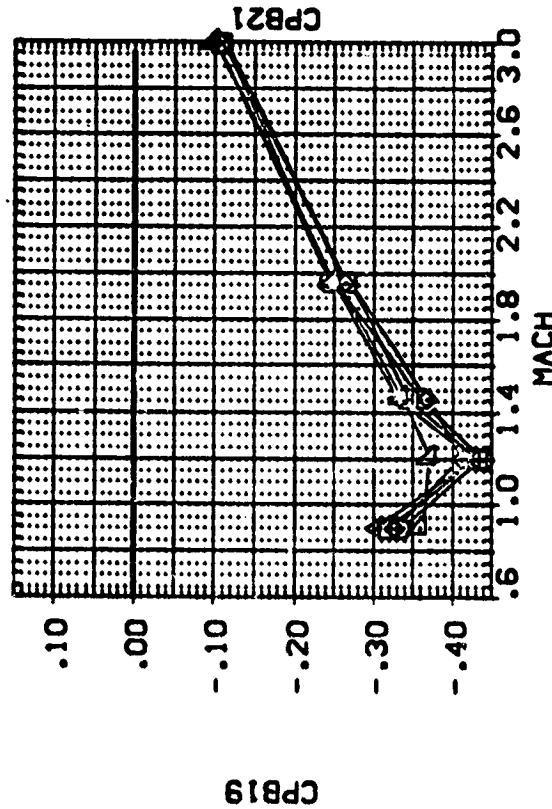
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CONFIGURATION DESCRIPTION

DATA SET SYMBOL

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REFERENCE INFORMATION	
SREF	6.1980 IN.
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BREF	5.3130 IN.
XMRP	.0000 IN.
YMRP	.0000 IN.
ZMRP	.0000 IN.
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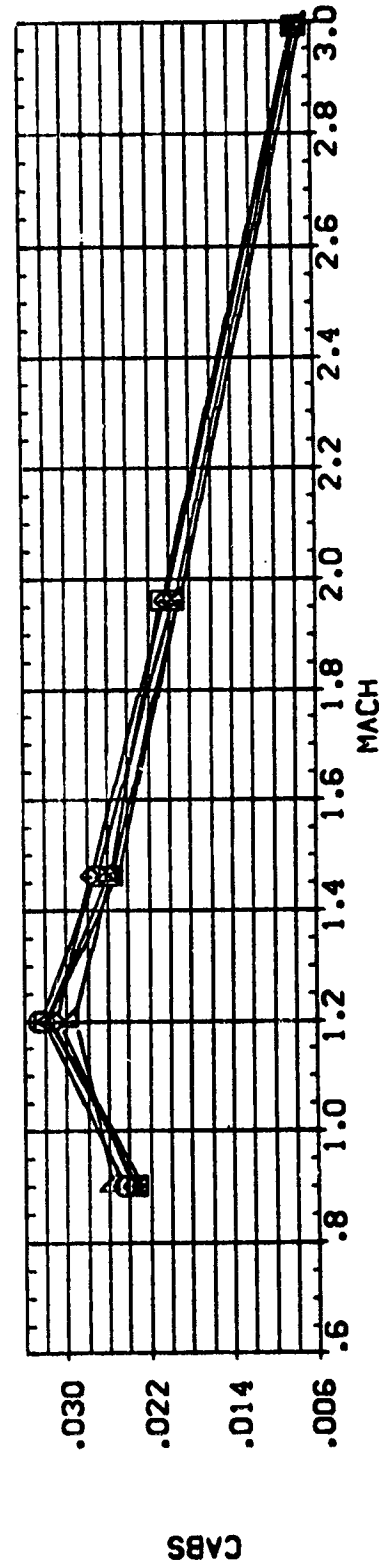
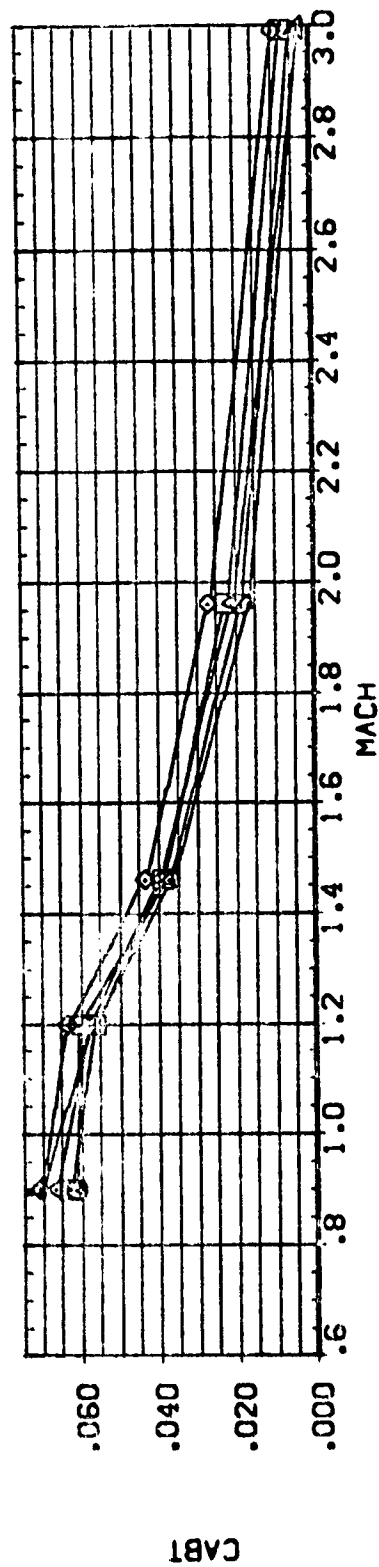
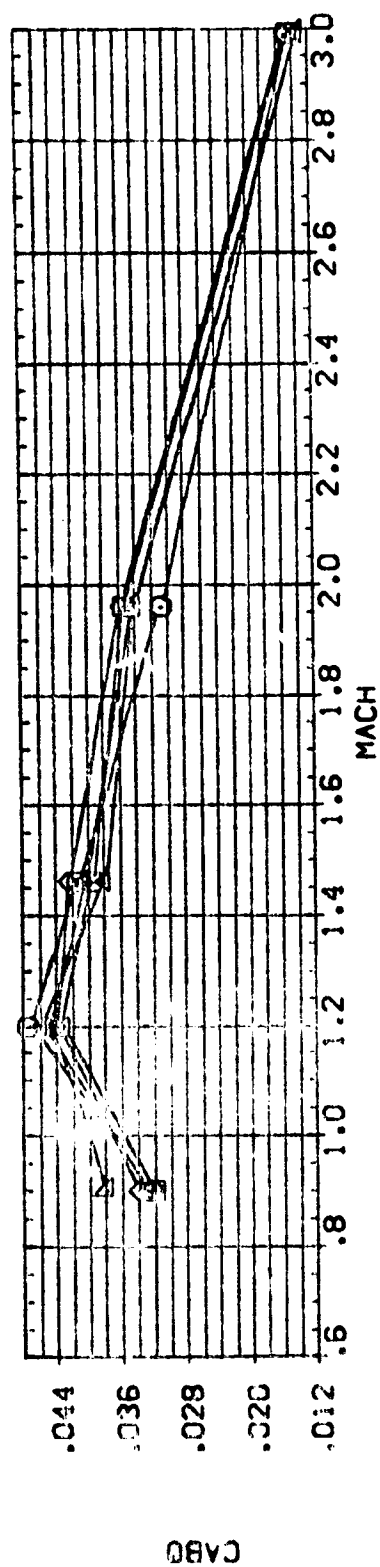
STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

{A)ALPHA = .00

PAGE 8

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI REFERENCE INFORMATION

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[B55003]	MSFC 538(1A53) GAS SUPPLY STRUT (CIF/1) M2/1)	.000	.000	.000	BREF 5.3130	IN.
[B55004]	MSFC 538(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000	XMRP .0000	IN.
[B55005]	MSFC 538(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000	YMRP .0000	IN.
					ZMRP .0000	IN.
					SCALE .0000	



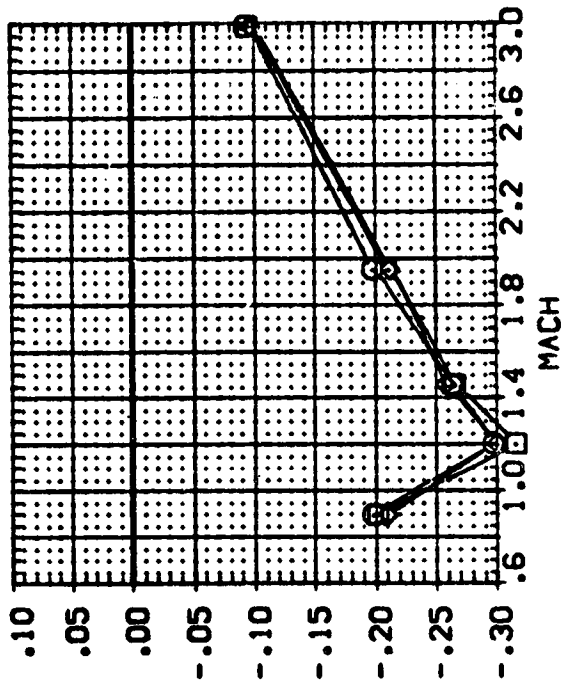
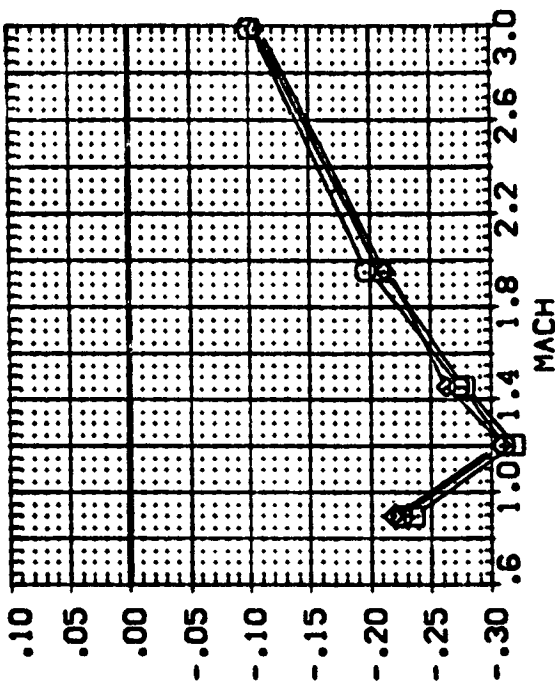
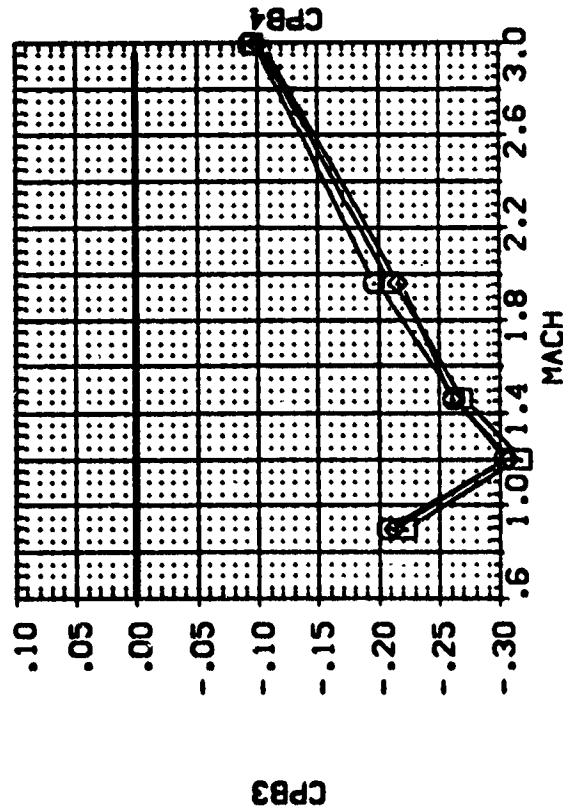
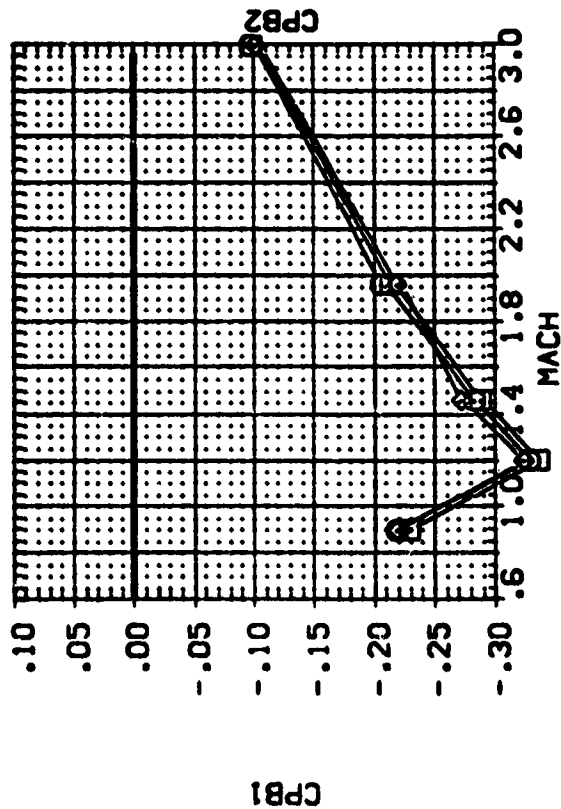
STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT

(ALPHA = .00

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 (B56007) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 02)

ALPHA BETA PHI
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 .000 .000 .000
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REFERENCE INFORMATION
 SREF 6.1980 SG. IN.
 LREF 5.3130 IN.
 BREF 5.3130 IN.
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ORBITER / ET AIR SUPPLY FAIRING EFFECTS

[A] ALPHA = .00

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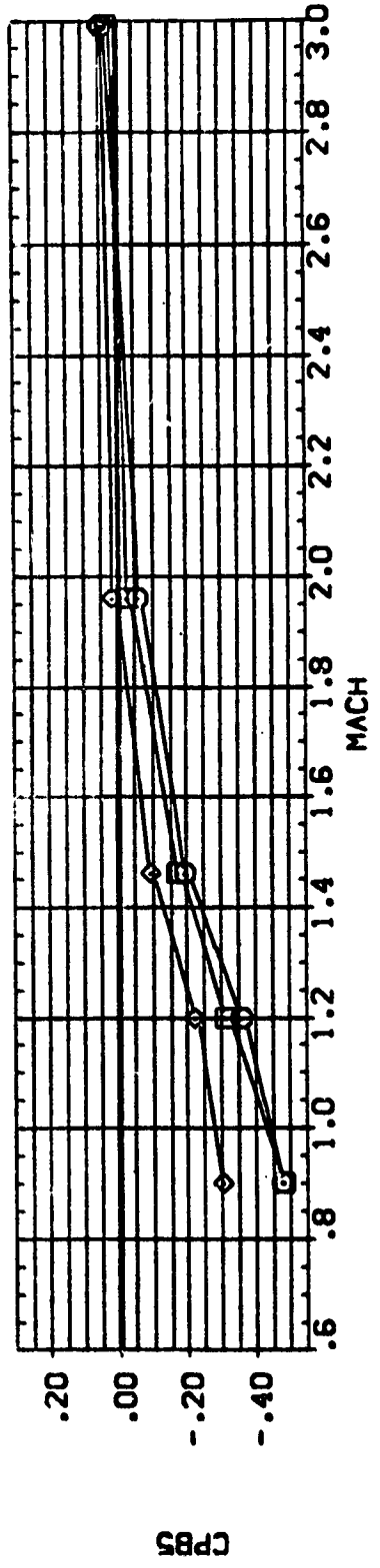
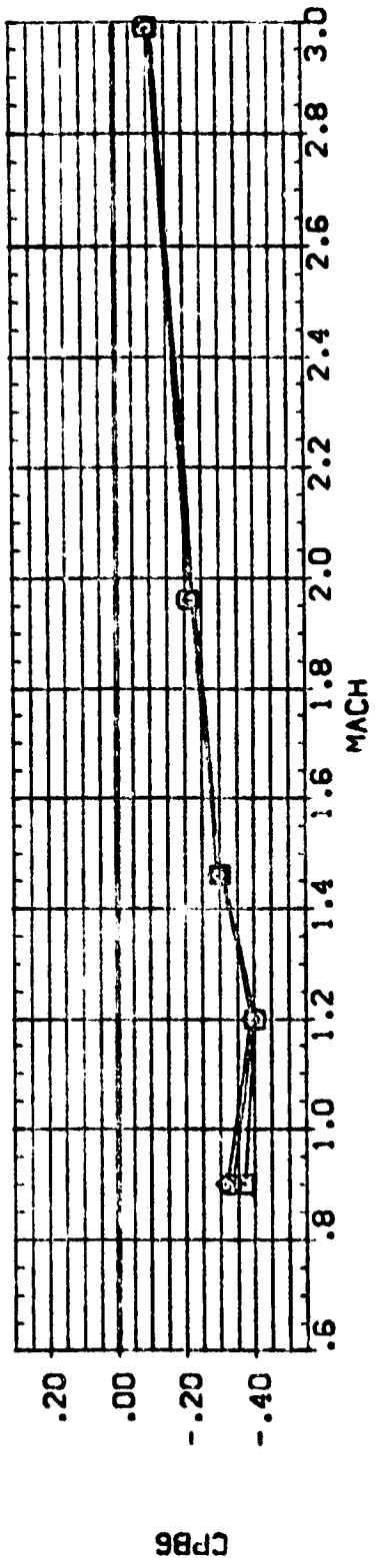
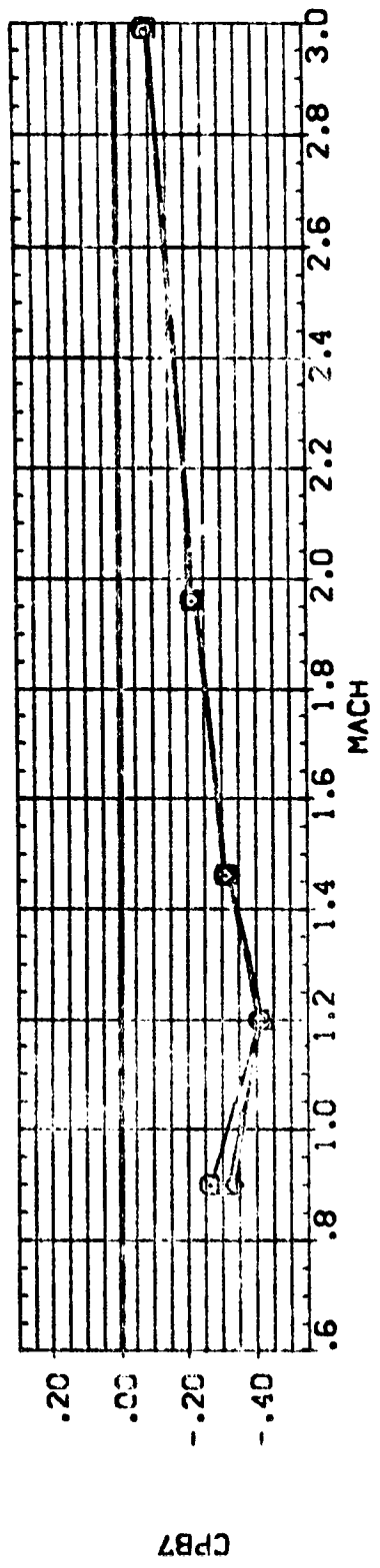
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ALPHA: .000 .000 .000

BETA: .000 .000 .000

PHI: .000 .000 .000

REFERENCE INFORMATION: SREF 5.1980 SD: IN LREF 5.3130 IN: IN: BREF 5.3130 IN: IN: XMRP .0000 IN: IN: YMRP .0000 IN: IN: ZMRP .0000 IN: IN: SCALE .0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

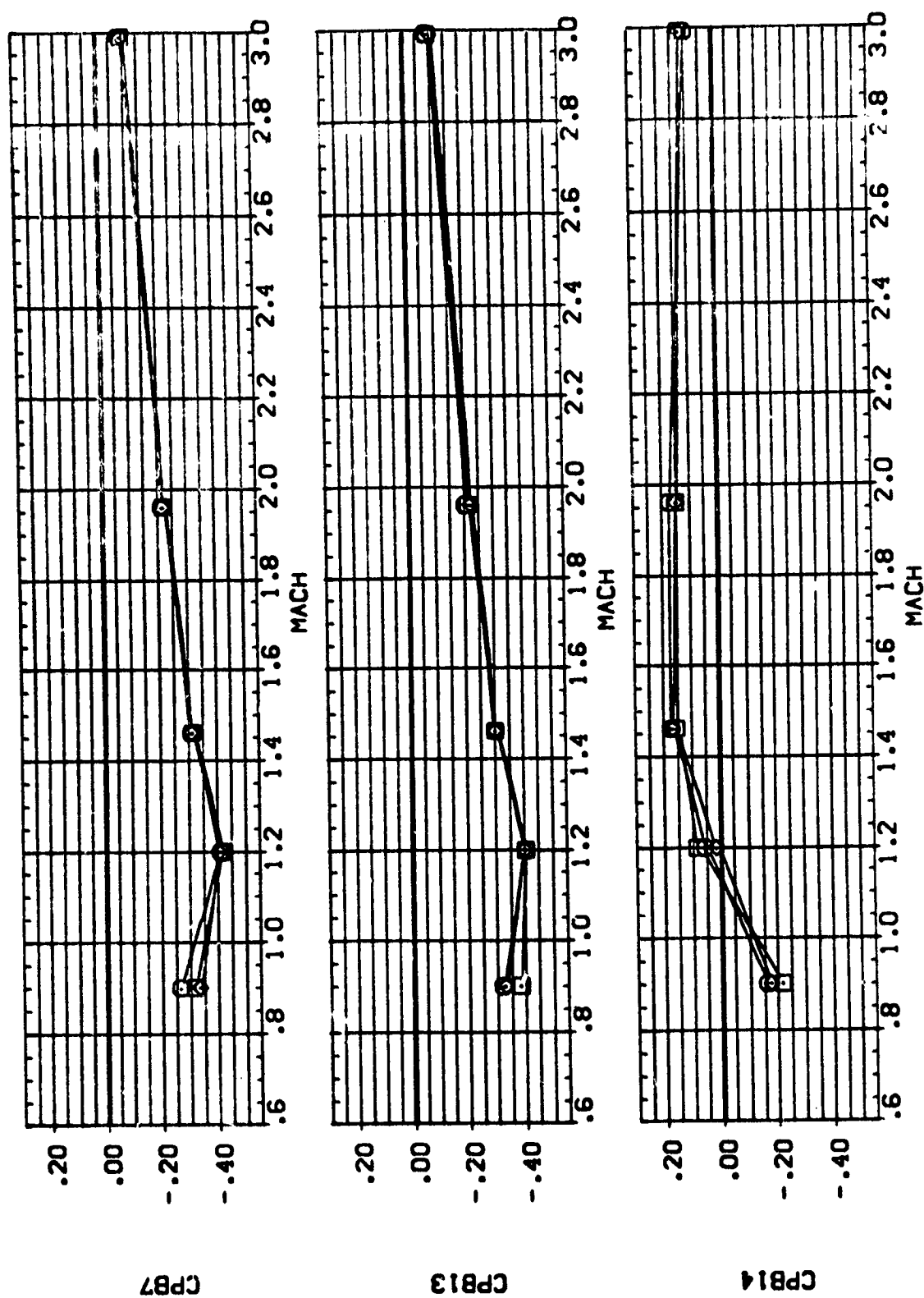
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ALPHA BETA PHI
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 BREF 5.3130 IN.
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ORBITER / ET AIR SUPPLY FAIRING EFFECTS

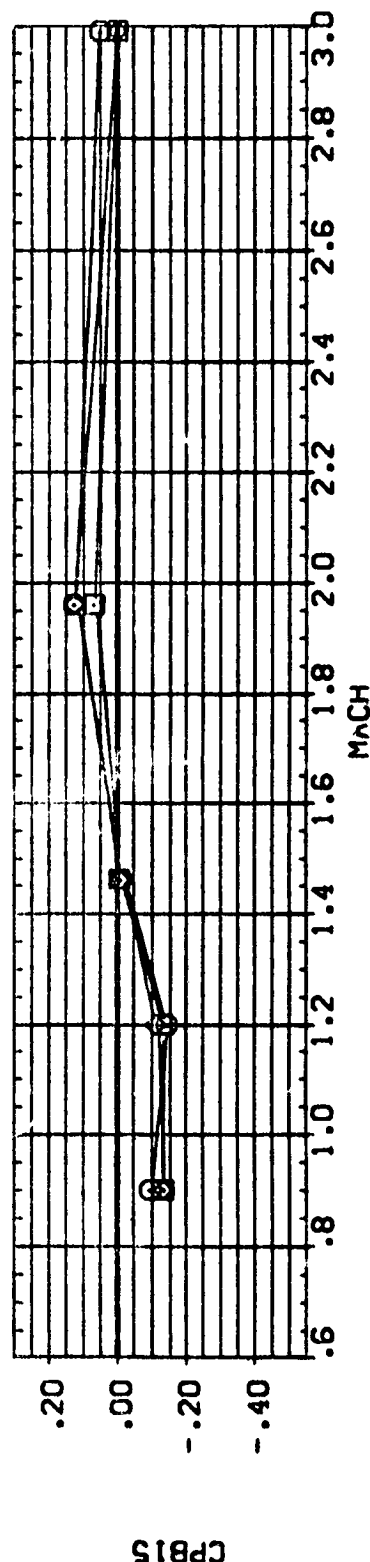
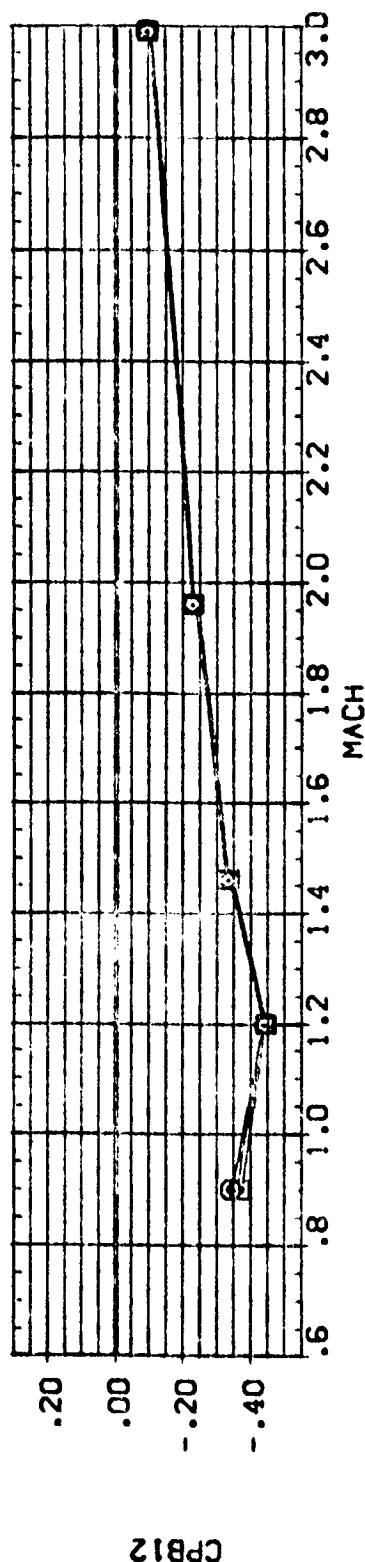
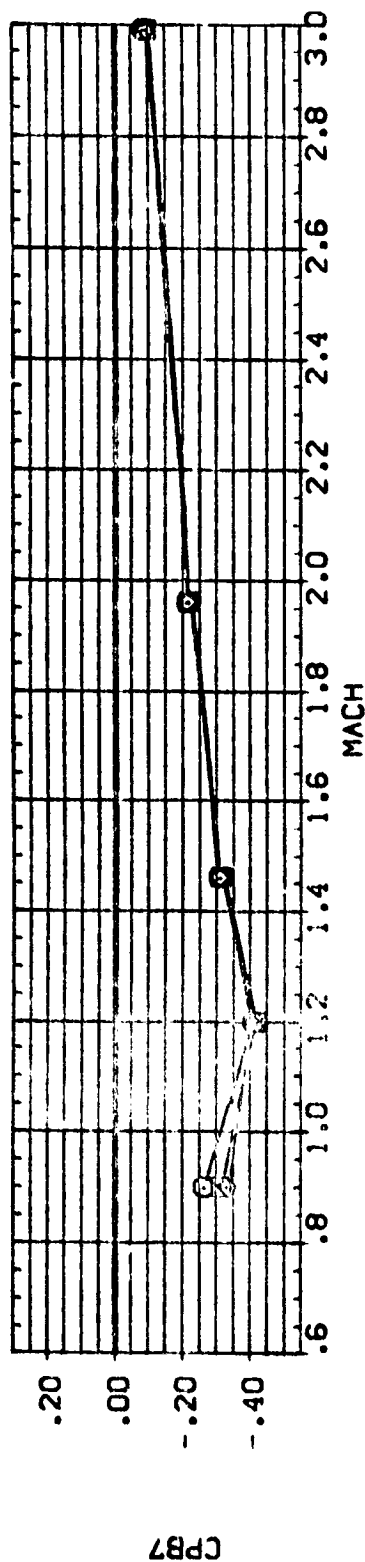
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REFERENCE INFORMATION: SREF 6.1980 SQ. IN. LREF 5.3130 IN. BREF 5.3130 IN. XMRP .0000 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .0000

ALPHA .000 BETA .000 PHI .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

(A)ALPHA = .00

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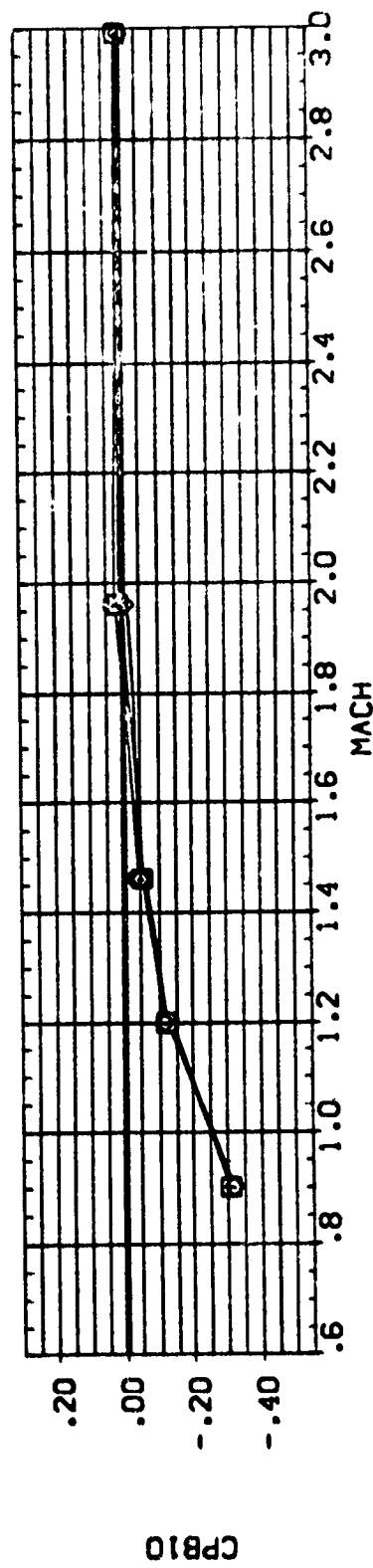
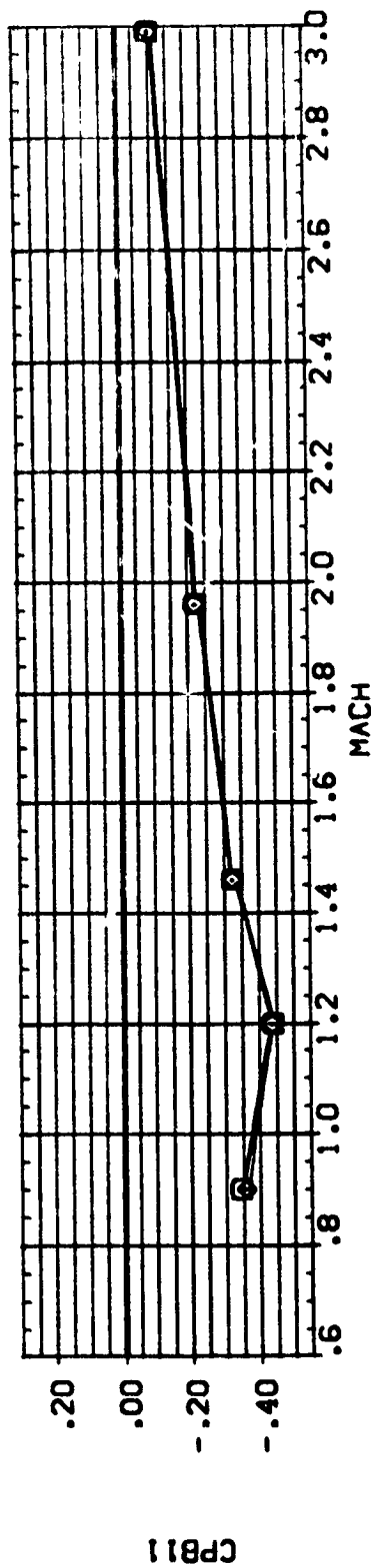
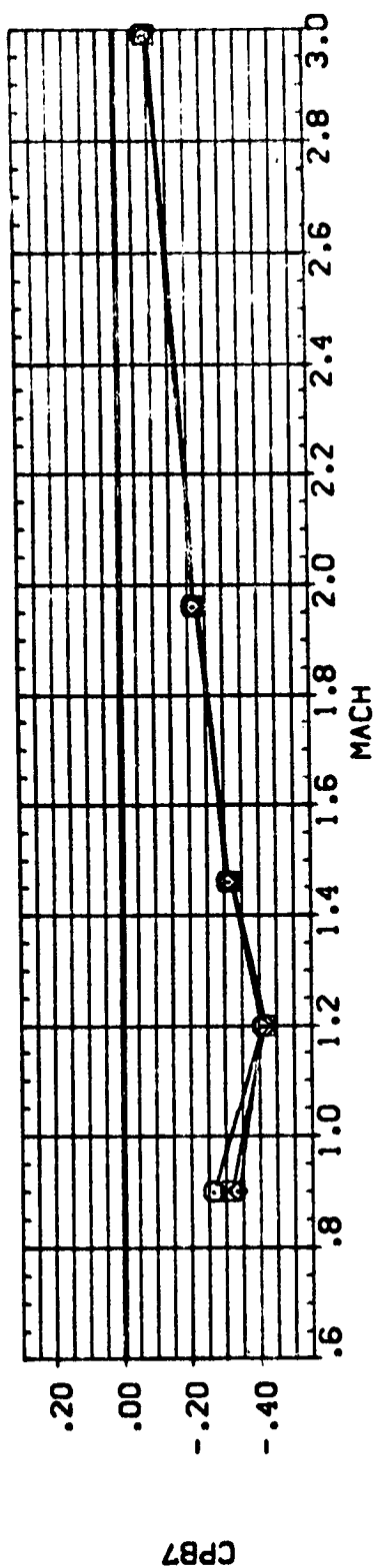
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ALPHA: .000 .000 .000

BETA: .000 .000 .000

PHI: .000 .000 .000

REFERENCE INFORMATION: SREF 6.1980 SD. IN LREF 5.3130 N: N: BREF 5.3130 N: N: YMRP .0000 N: N: ZMRP .0000 N: N: SCALE .0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

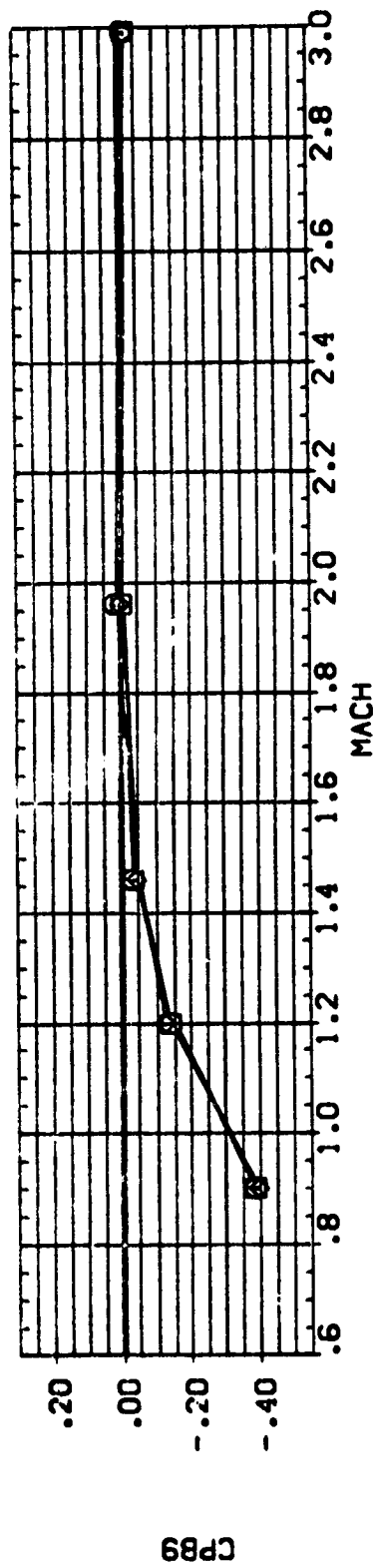
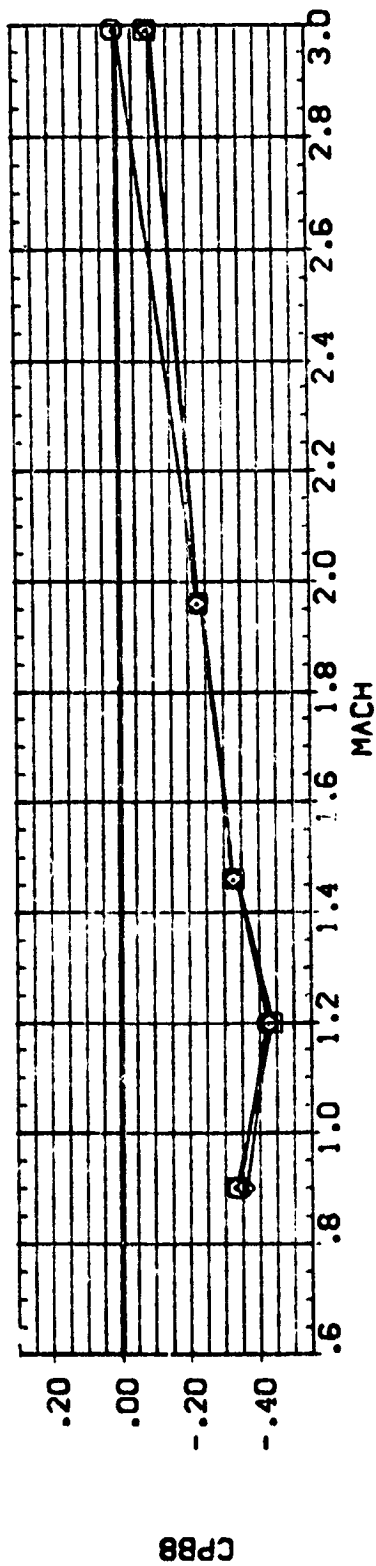
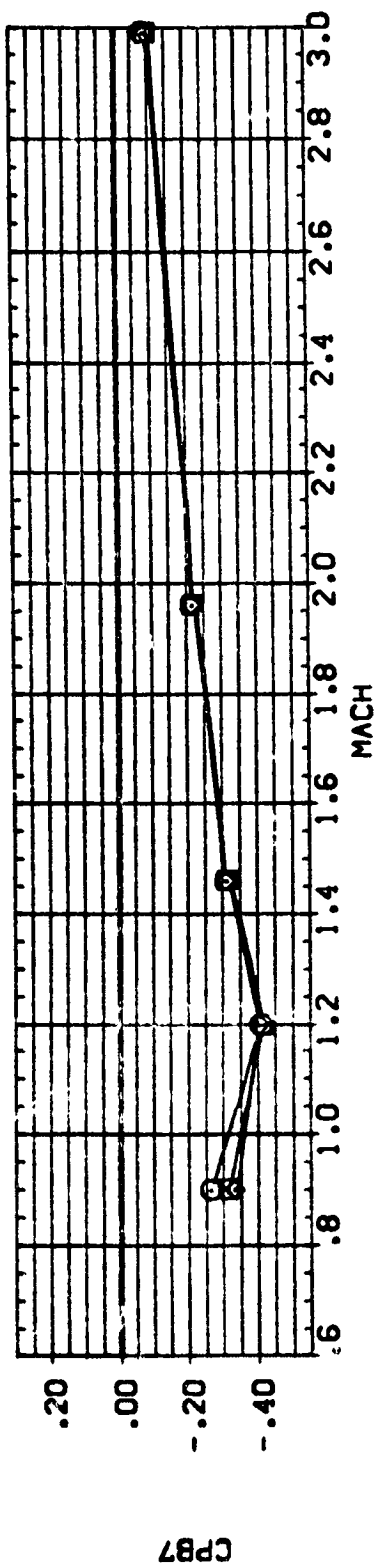
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REFERENCE INFORMATION: SREF 6.1980 SO. IN. LREF 5.3130 IN. BREF 5.3130 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .0000

ALPHA .000 BETA .000 PHI .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

(ALPHA = .00

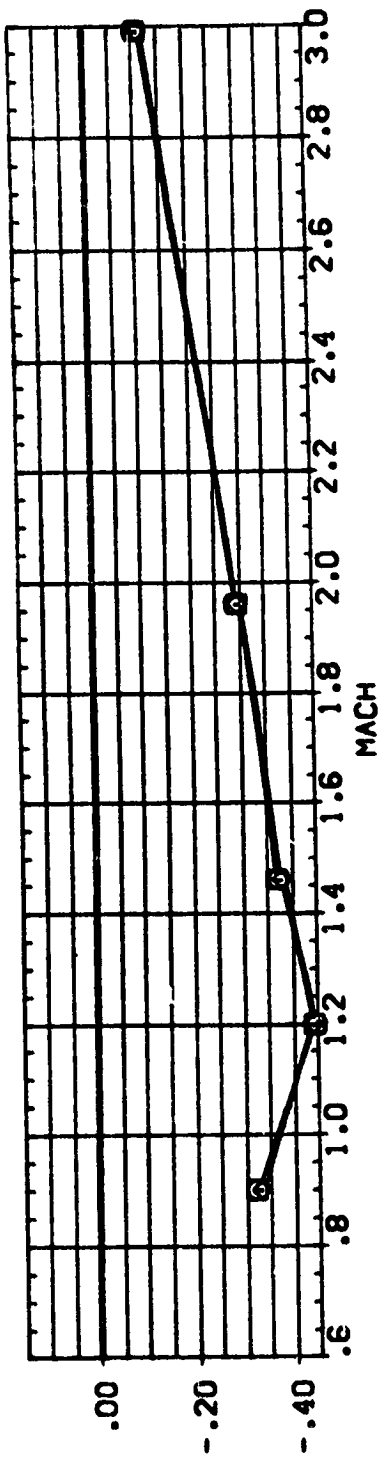
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(B96307)

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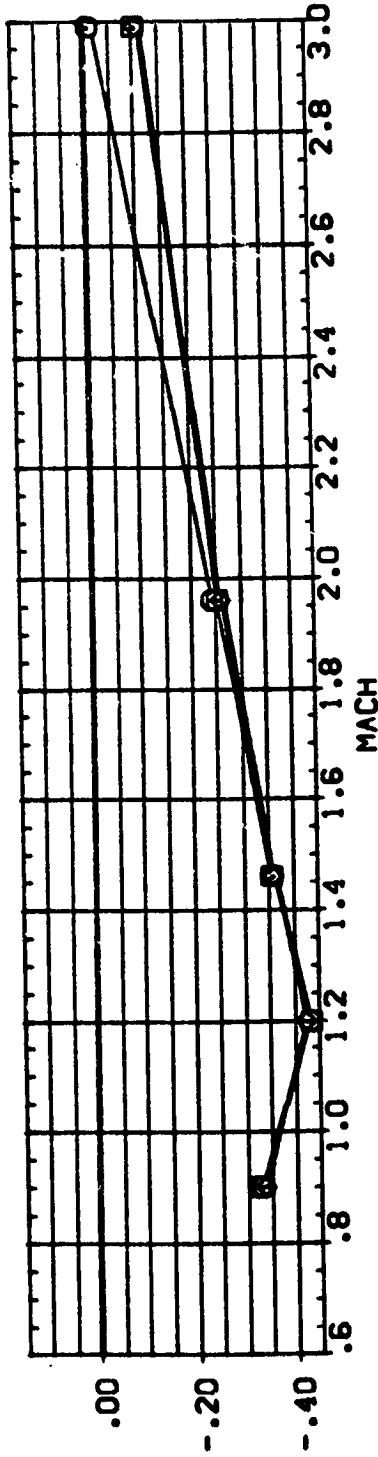
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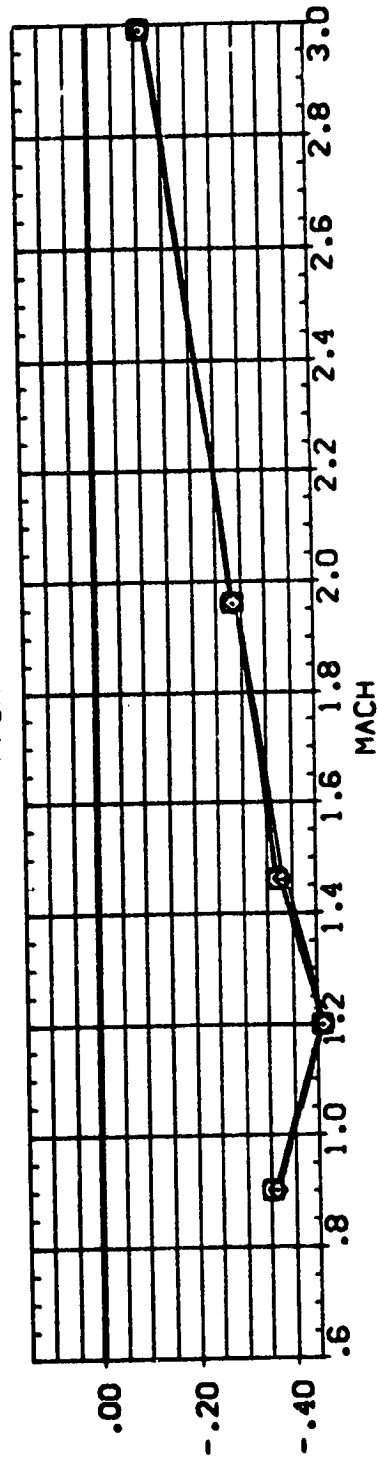
CPB17



CPB16



CPB18



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

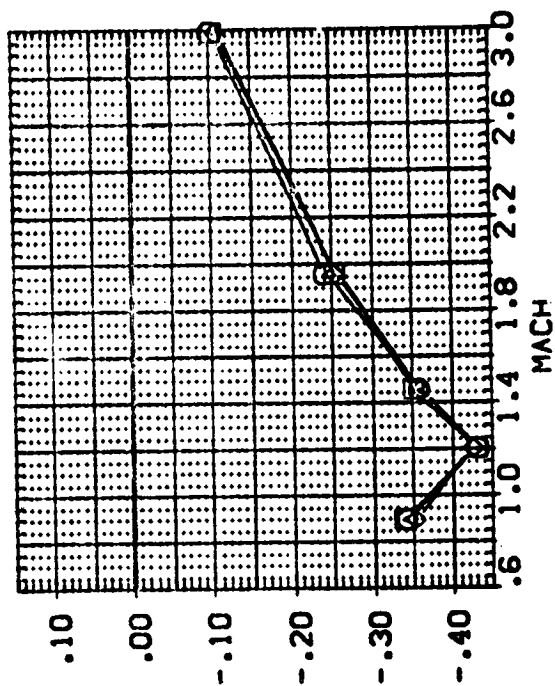
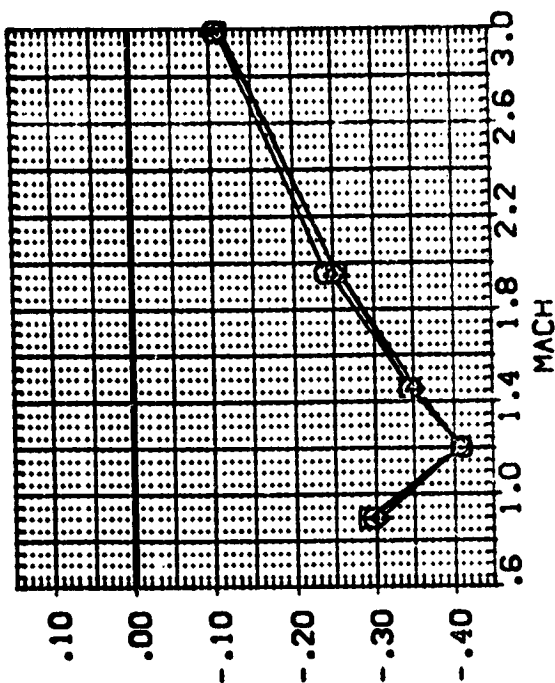
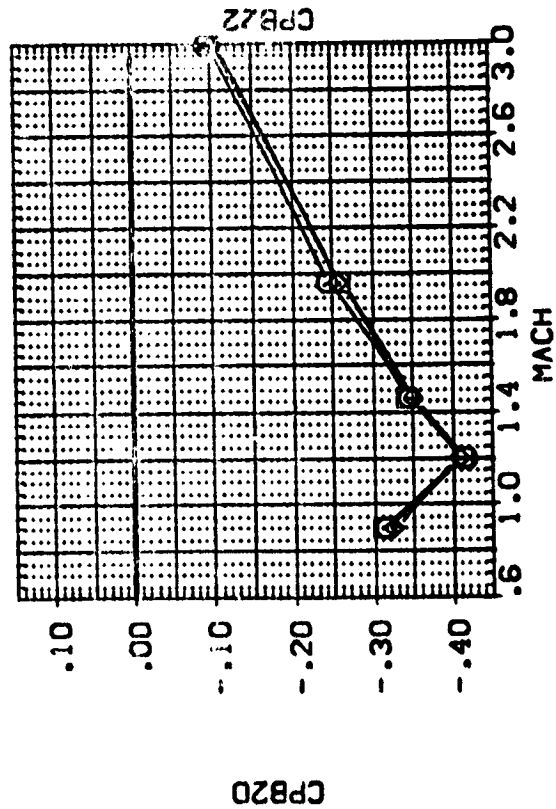
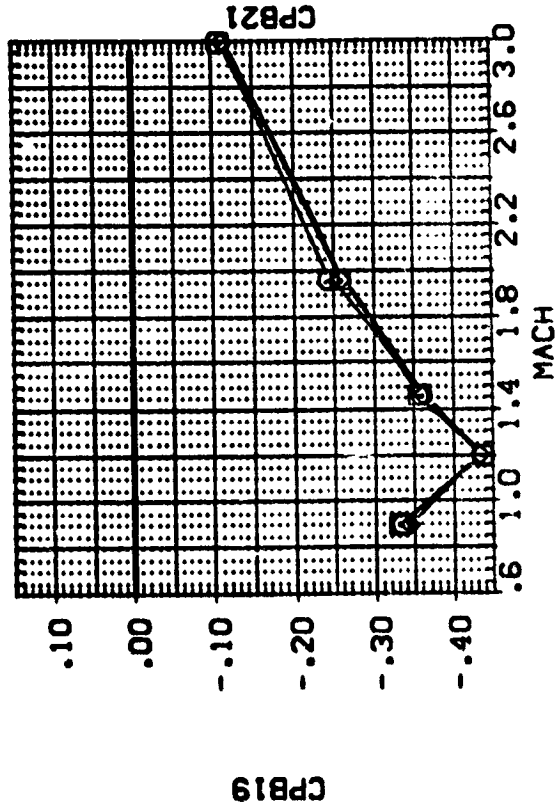
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REFERENCE INFORMATION: SREF 5.1980 SQ. IN. LREF 5.3130 IN. BREF 5.3130 IN. XMRP .0000 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .0000

ALPHA .000 BETA .000 PHI .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS

(A) ALPHA = .00

REFERENCE INFORMATION

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ALPHA BETA PHI

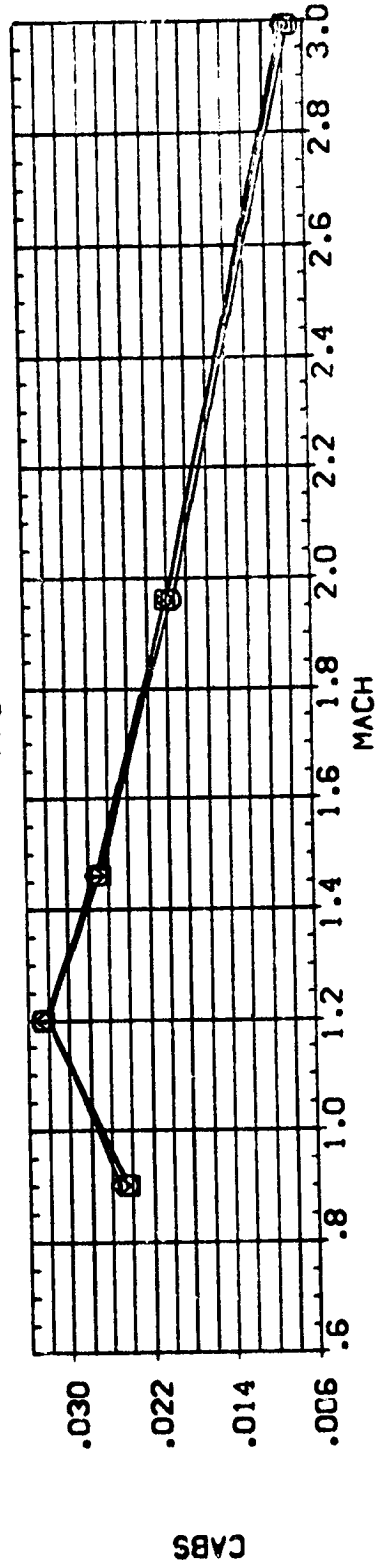
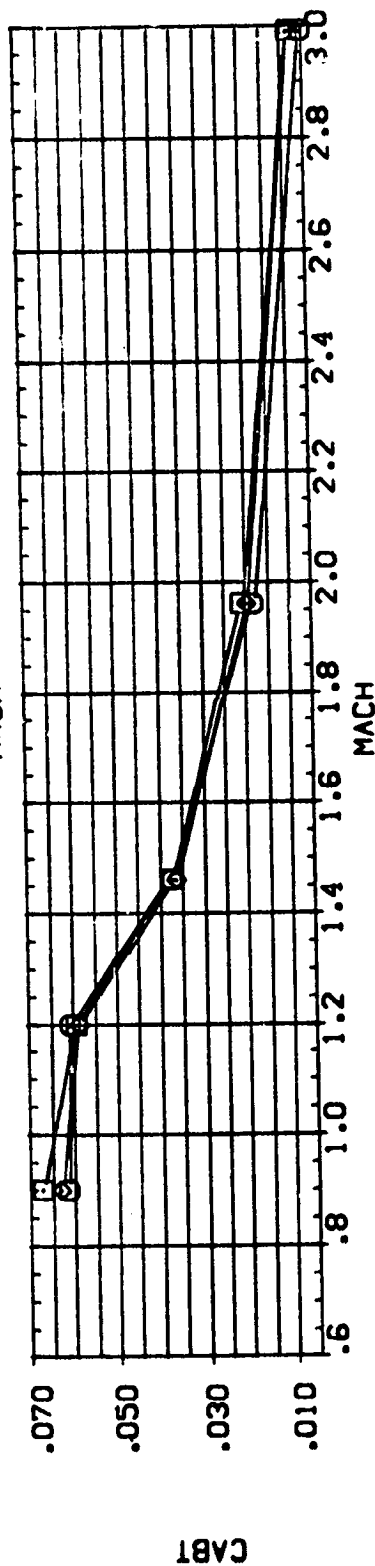
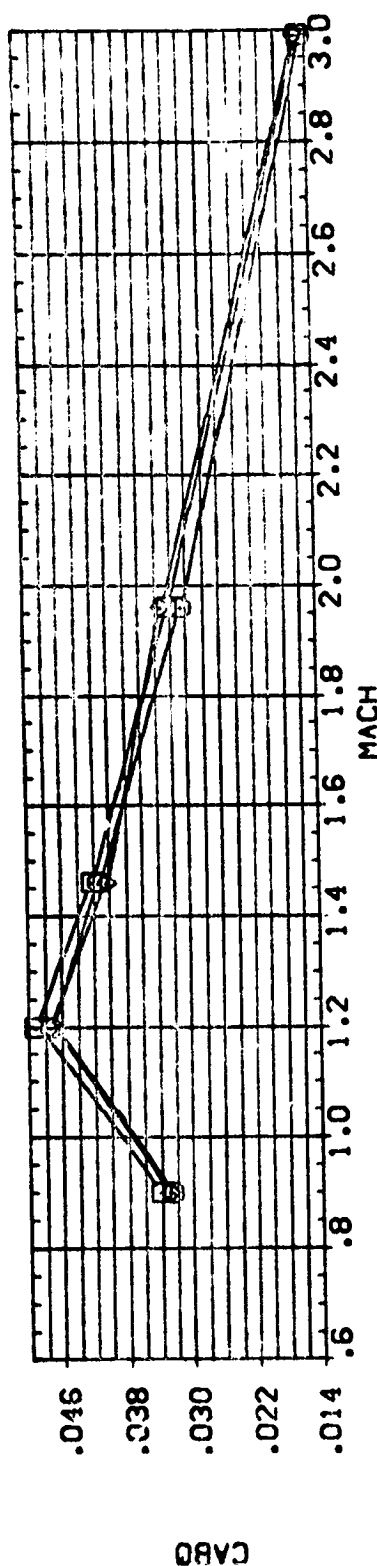
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CONFIGURATION DESCRIPTION

MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1 G1)
MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1 G2)

DATA SET SYMBOL

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(B56007)



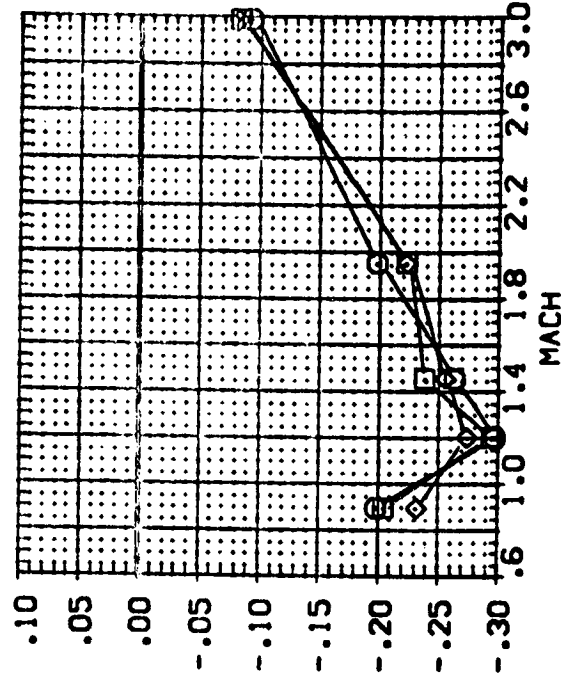
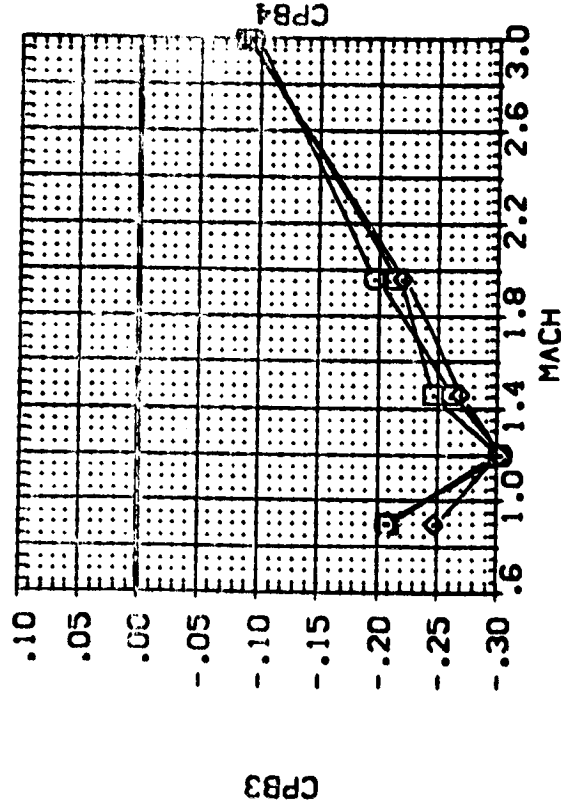
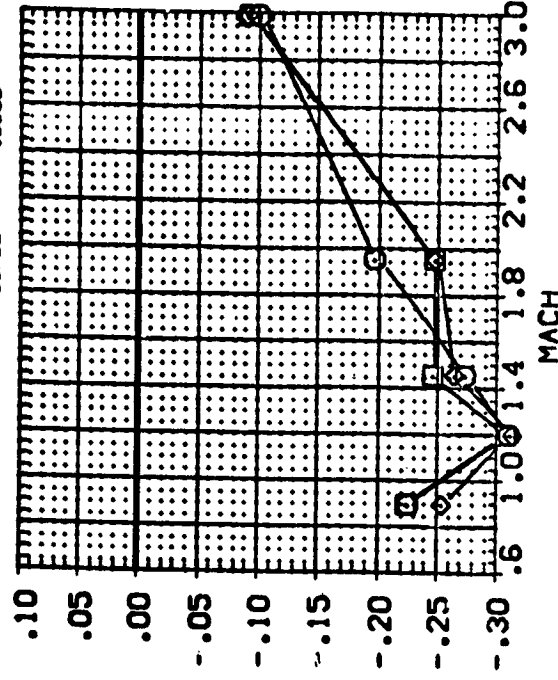
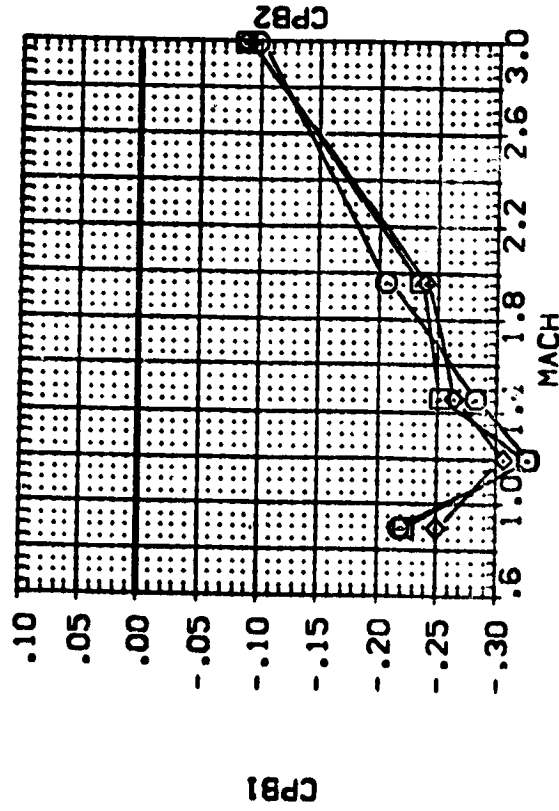
ORBITER / ET AIR SUPPLY FAIRING EFFECTS

(A)ALPHA = .00

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (B56001) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) G2 M2/1
 (B56008) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) G2 M2/1
 (B56009) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) G2 M2/2

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000

REFERENCE INFORMATION
 SREF 6.1880 50. IN
 LREF 5.3130 IN.
 BREF 5.3130 IN.
 XMRP .0000 IN.
 YMRP .0000 IN.
 ZMRP .0000 IN.
 SCALE .0000



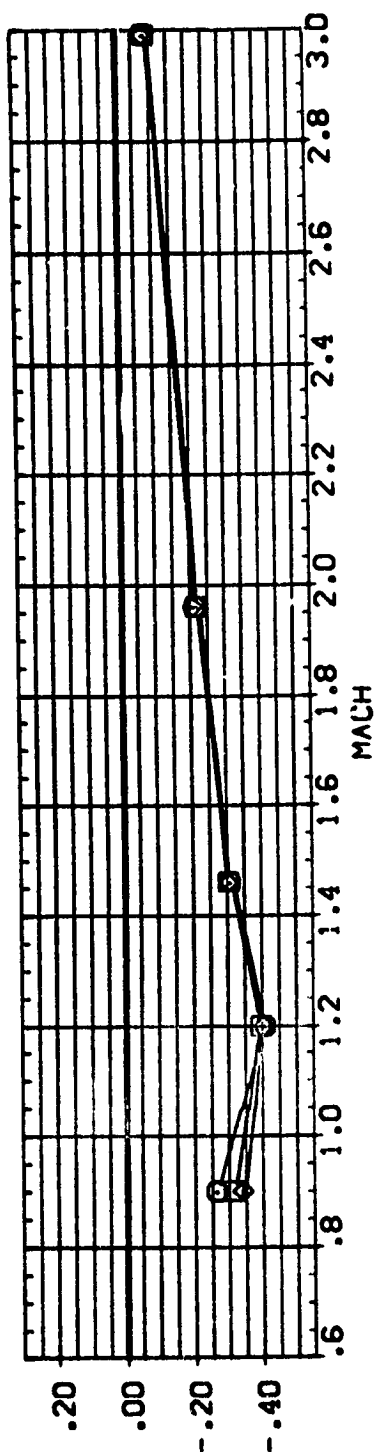
ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

(A) ALPHA = .00

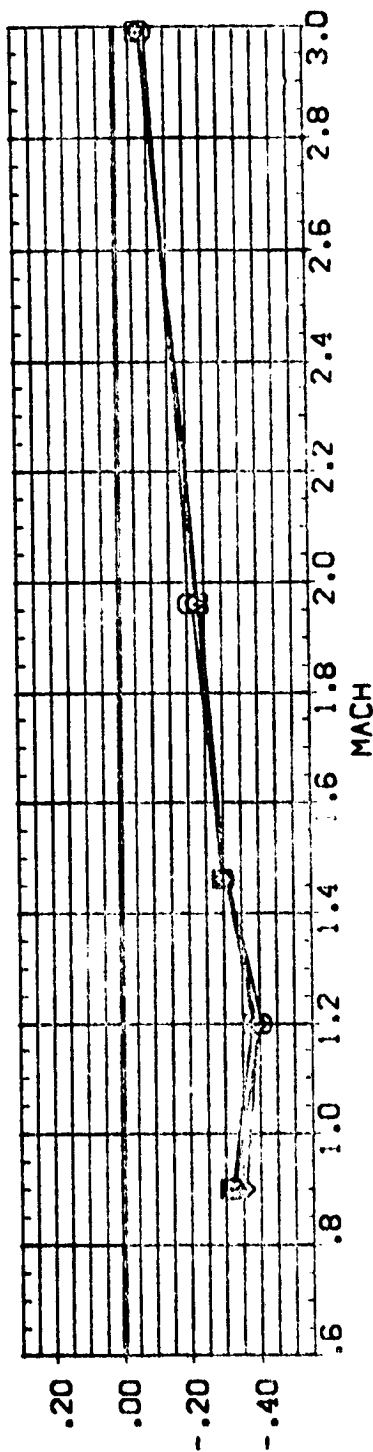
DATA SET SYMBOL CONFIGURATION DESCRIPTION REFERENCE INFORMATION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI	SREF	LREF	BREF	XMRP	ZMRP	SCALE
(B96101)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000	6.1980	5.3130	IN.	IN.	IN.	IN.
(B96102)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 G2 M2/1)	.000	.000	-90.000	5.3130	IN.	IN.	IN.	IN.	IN.
(B96103)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 G2 M2/2)	.000	.000	-90.000	.0000	.0000	IN.	IN.	IN.	IN.

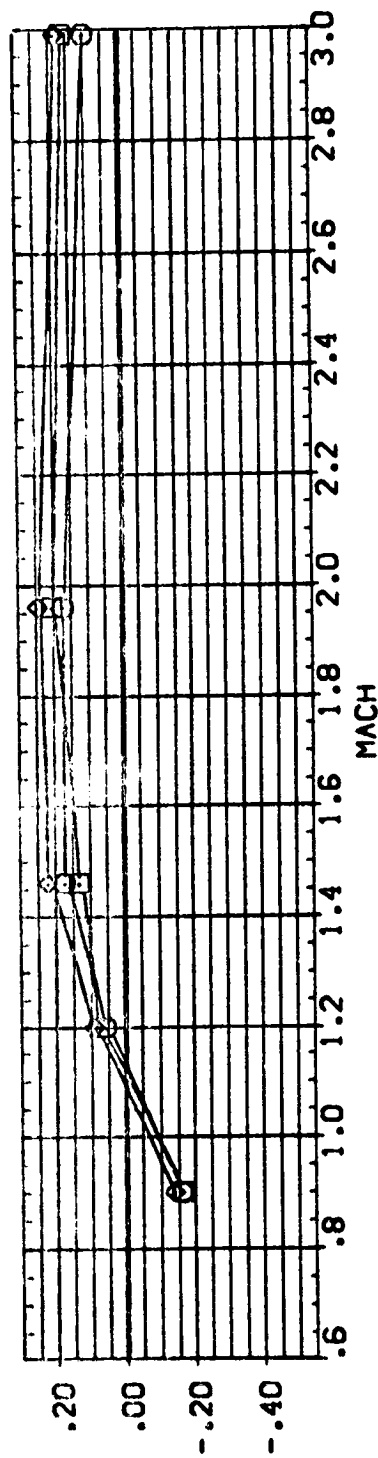
CPB7



CPB13



CPB14



ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

(A) ALPHA = .00

DATA SET SYMBOL: (B56101) (B56108) (B56109)

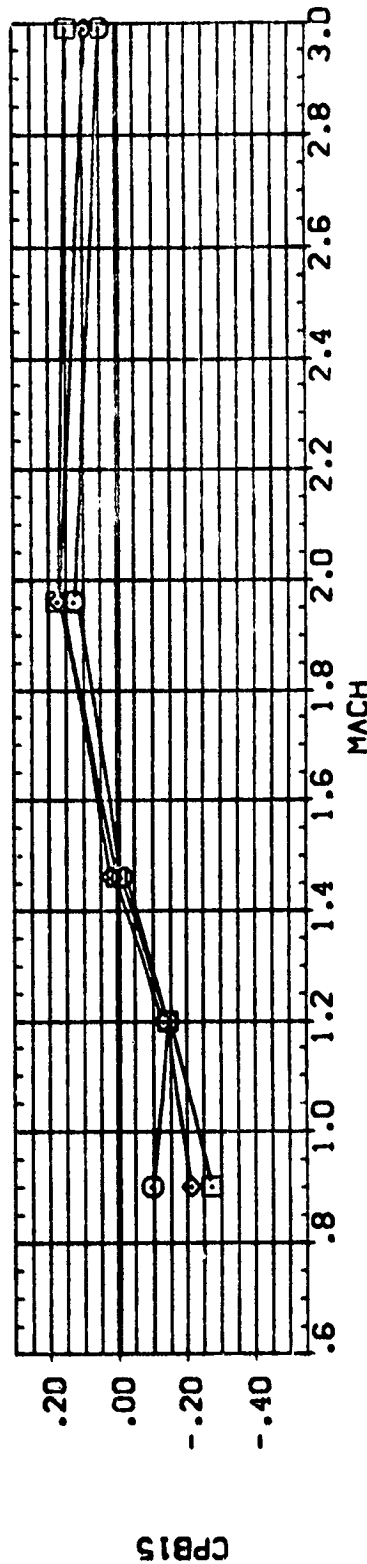
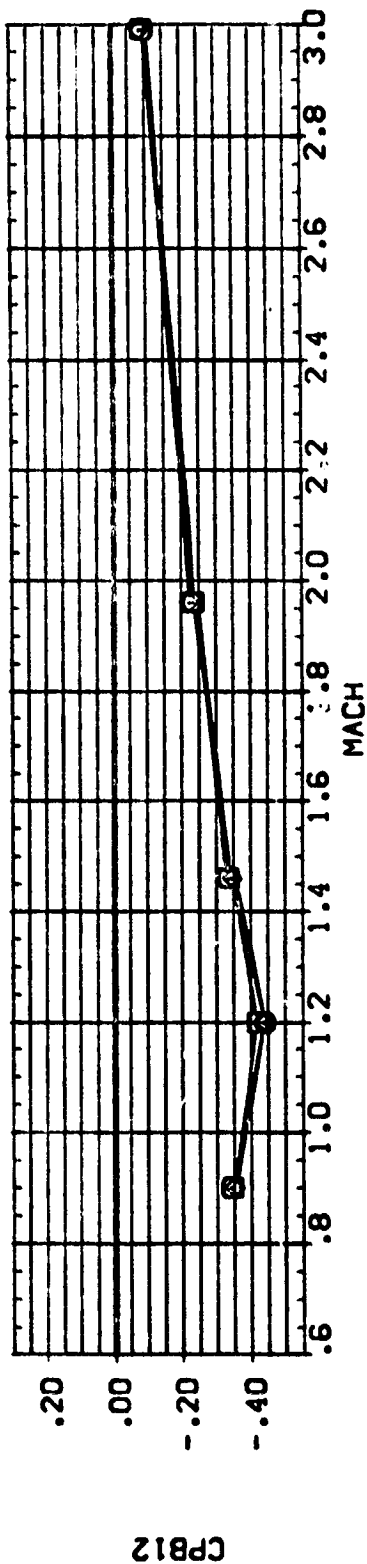
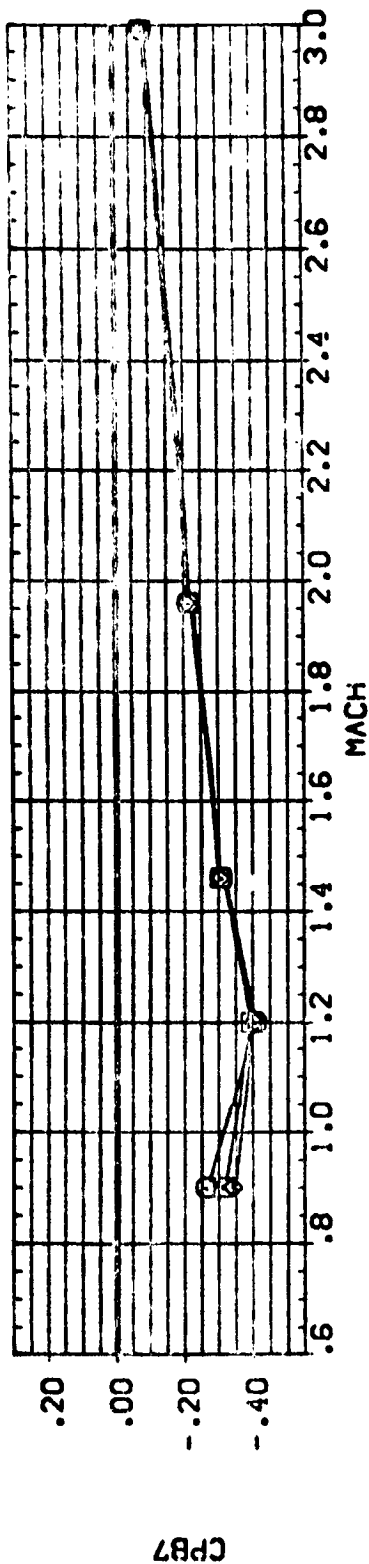
CONFIGURATION DESCRIPTION: MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)

ALPHA: .000 .000 .000

BETA: .000 .000 .000

PHI: .000 -90.000 -90.000

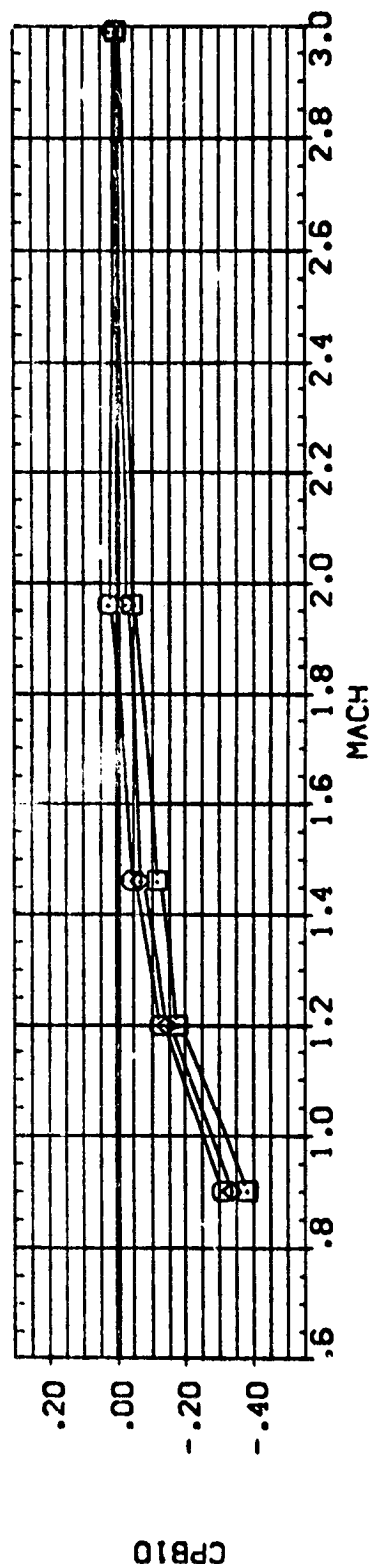
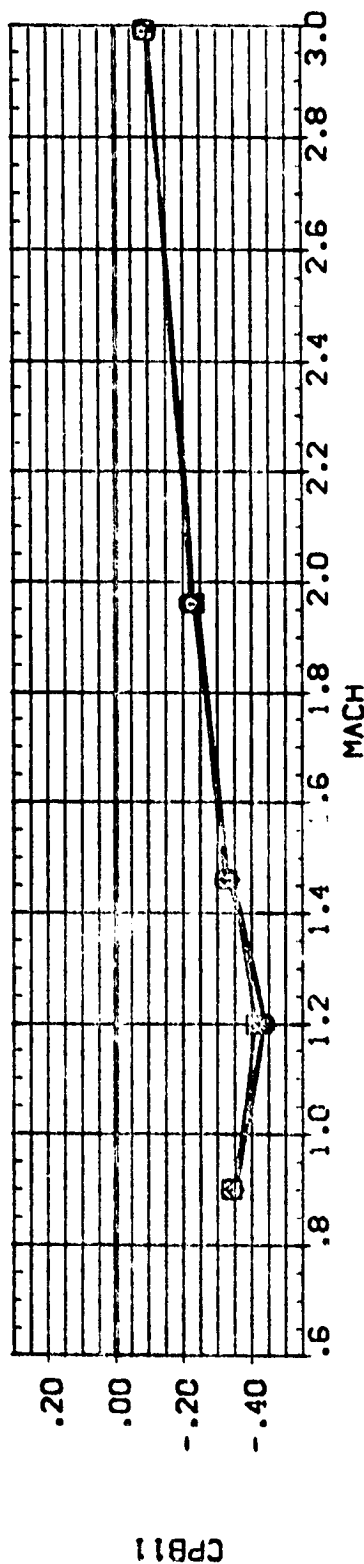
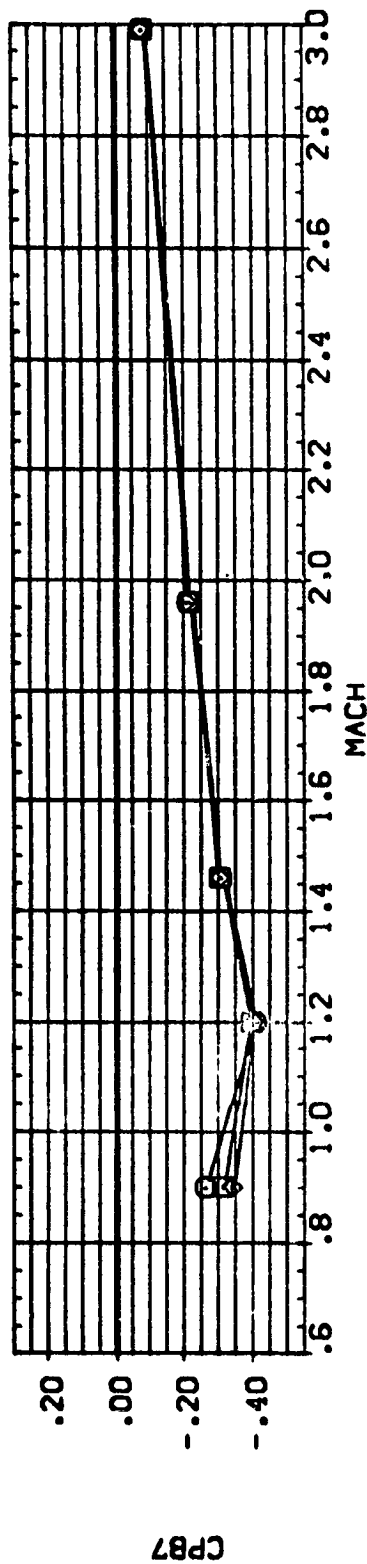
REFERENCE INFORMATION: SREF 5.1590 SO: IN LREF 5.3150 IN: IN: BREF 5.3150 IN: IN: XMRP .0000 IN: IN: YMRP .0000 IN: IN: ZMRP .0000 IN: IN: SCALE .0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

(A)ALPHA = .00

REFERENCE INFORMATION	
SREF	6.1980
LRIF	5.3130
BREF	5.3130
XMRP	.0000
YMRP	.0000
ZMRP	.0000
SCALE	.0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

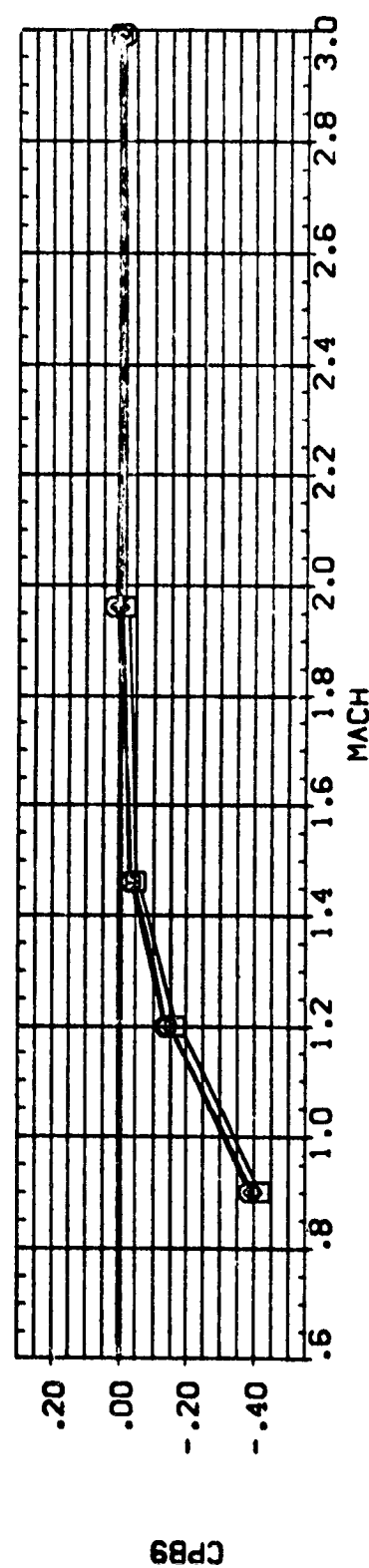
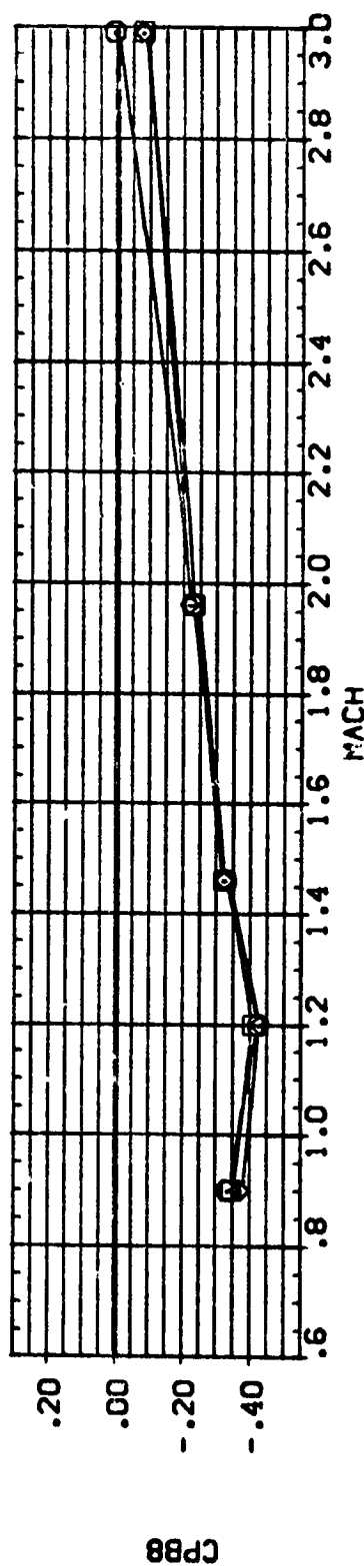
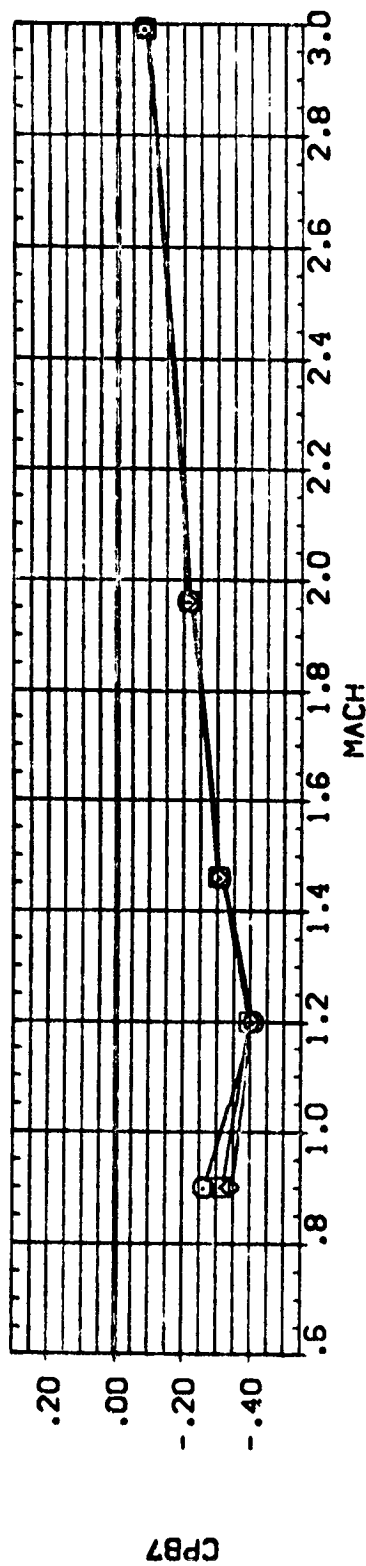
[ALPHA] = .00

PAGE 23

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (B96201) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
 (B96208) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1
 (B96209) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/2

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000

REFERENCE INFORMATION
 SREF 6.1980 50. IN
 LREF 5.3130 IN.
 BREF 5.3130 IN.
 XMRP .0000 IN.
 YMRP .0000 IN.
 ZMRP .0000 IN.
 SCALE .0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

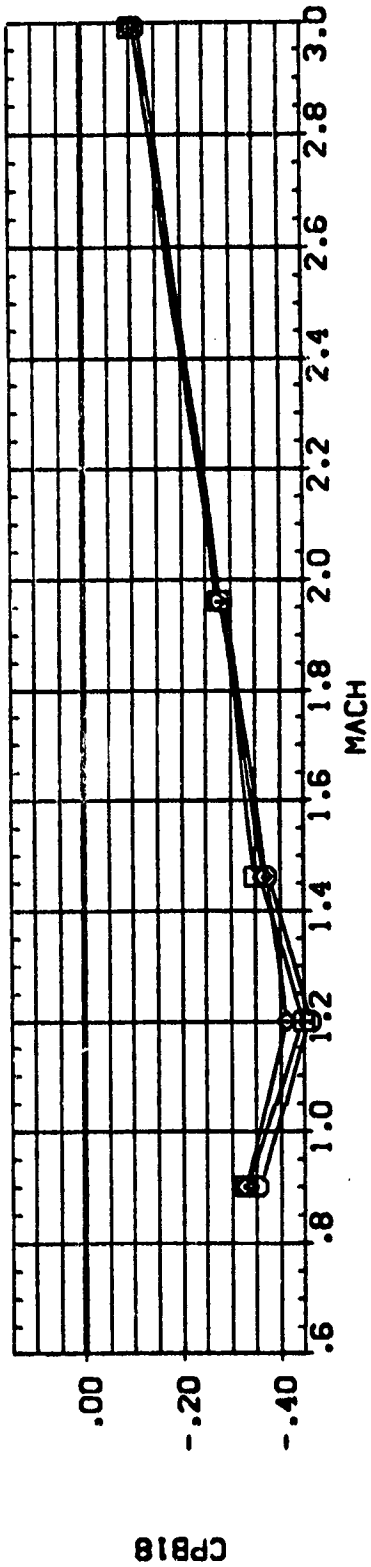
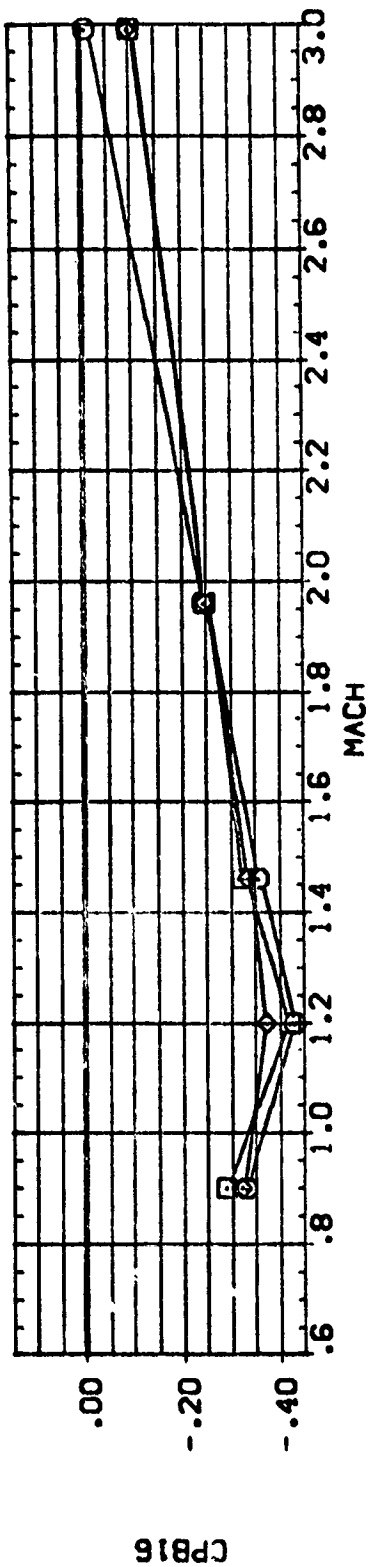
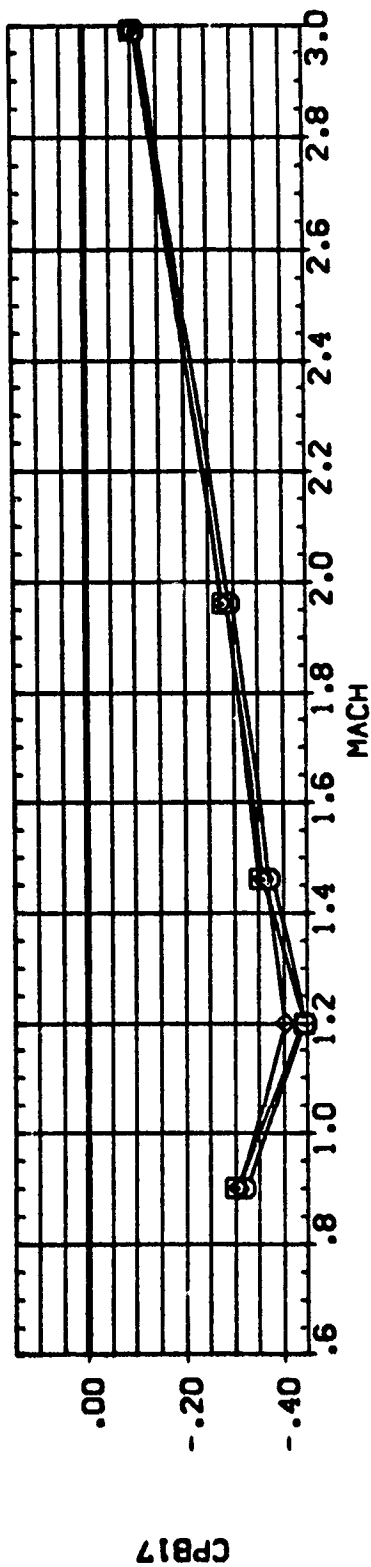
[A] ALPHA = .00

DATA SET SYMBOL: (886301) (886302) (886303)

CONFIGURATION DESCRIPTION: MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1) 62 M2/2)

ALPHA BETA PHI

REFERENCE INFORMATION: SREF 6.1980 50. IN. LREF 5.3130 IN. BREF 5.3130 IN. XMRP .0000 IN. YMRP .0000 IN. ZMRP .0000 IN. SCALE .0000



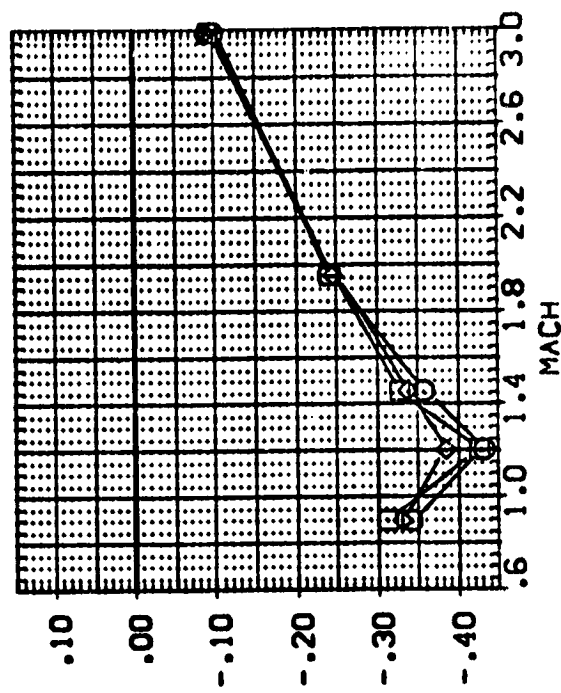
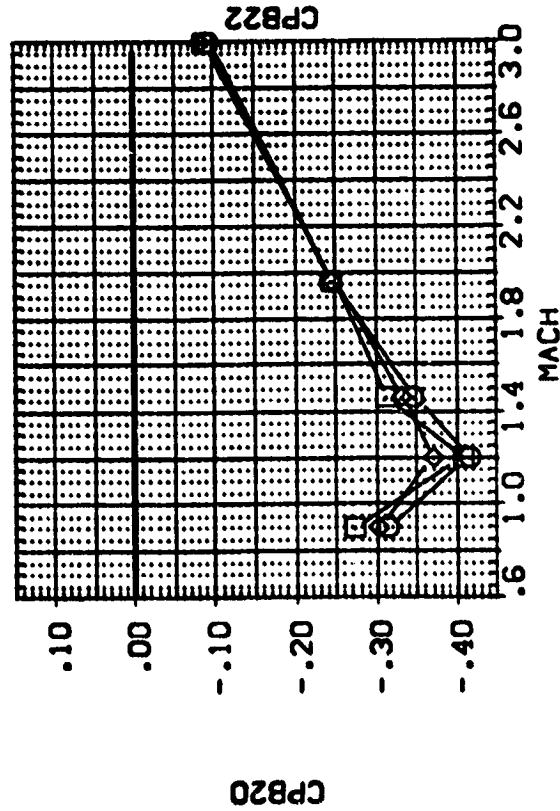
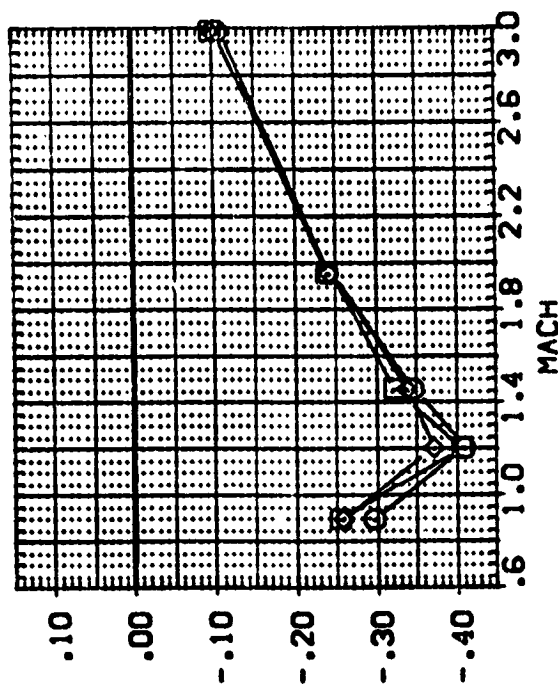
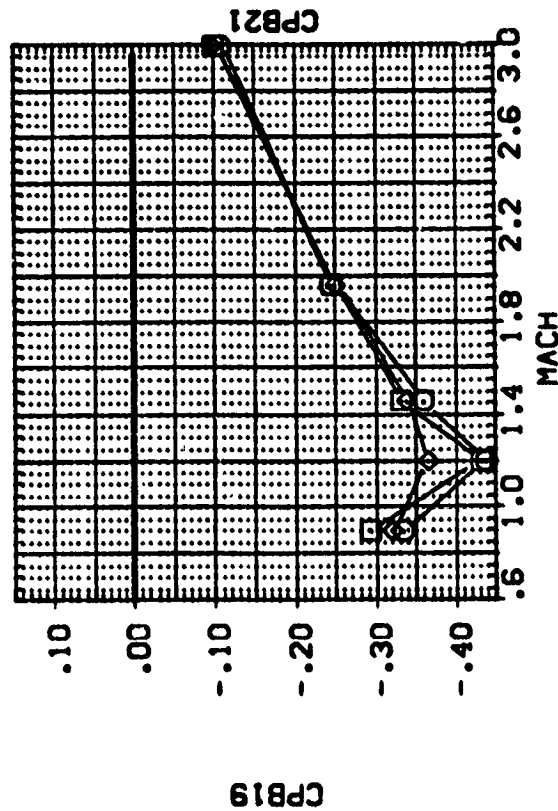
ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

(ALPHA = .00

DATA SET SYMBOL	CONFIGURATION DESCRIPTION
{B96301}	M5C 588(1A53) GAS SUPPLY STRUT (CIF/1)
{B96302}	M5C 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 P2/1)
{B96303}	M5C 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 P2/2)

ALPHA	BETA	PMI
.000	.000	.000
.000	.000	.000
.000	.000	.000

REFERENCE INFORMATION	
SREF	6.1980 SQ. IN.
LREF	5.3130 IN.
BREF	5.3130 IN.
XMRP	.0000 IN.
YMRP	.0000 IN.
ZMRP	.0000 IN.
SCALE	.0000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

[A]ALPHA = .00

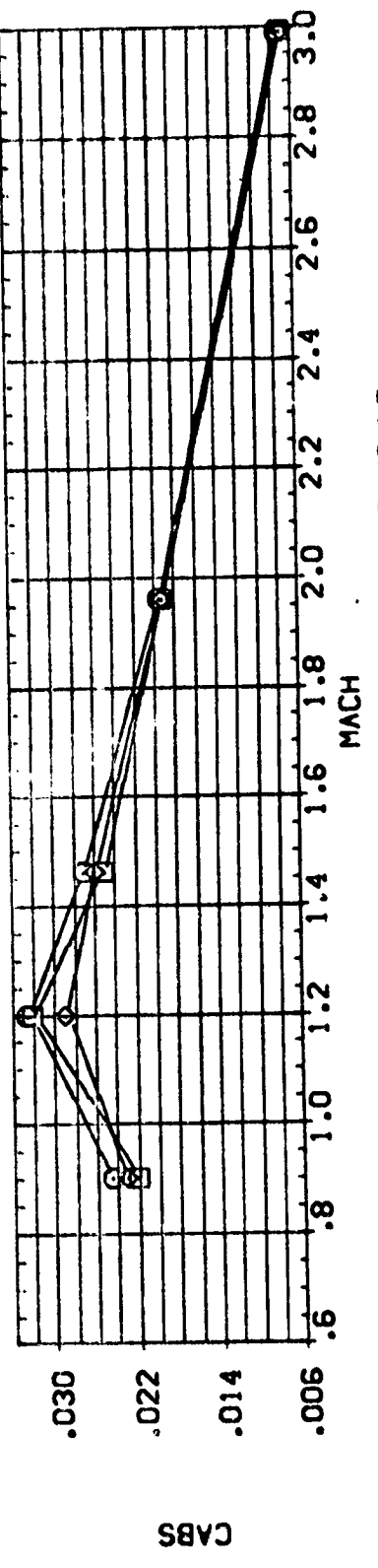
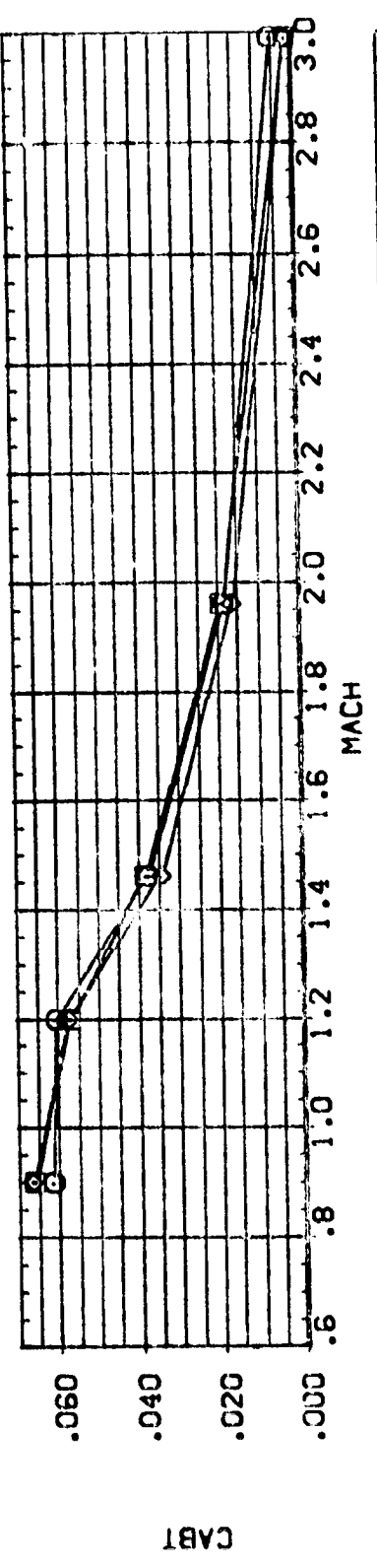
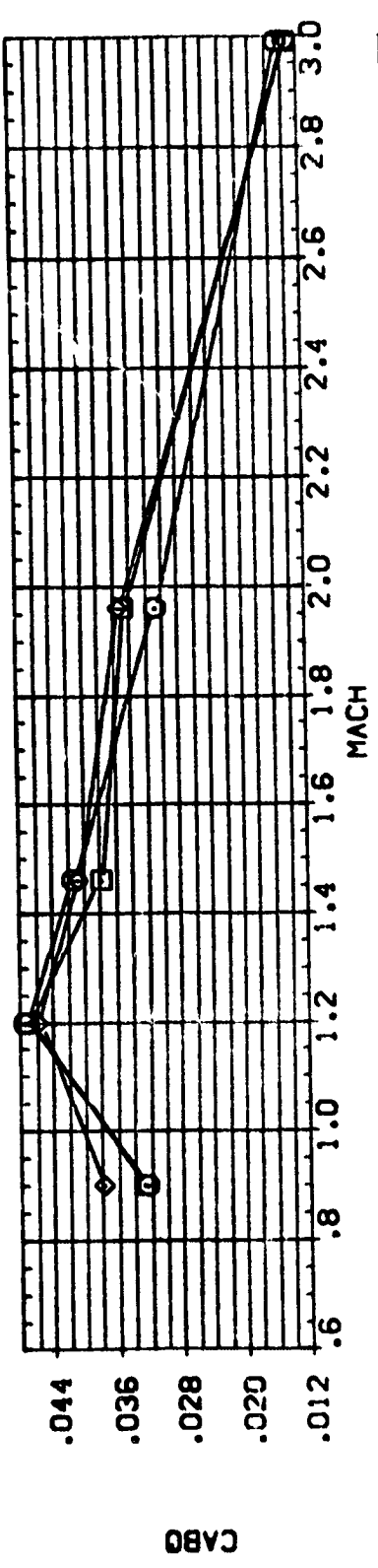
DATA SET SYMBOL
 (B96001)
 (B96002)
 (B96003)

CONFIGURATION DESCRIPTION
 MSFC 588(1A33) GAS SUPPLY STRUT (C1F/1)
 MSFC 588(1A33) GAS SUPPLY STRUT (C1F/1 62 M2/1)
 MSFC 588(1A33) GAS SUPPLY STRUT (C1F/1 62 M2/2)

REFERENCE INFORMATION
 SREF 6.1980
 LREF 5.3130
 BREF 5.3130
 XMRP .0000
 YMRP .0000
 ZMRP .0000
 SCAL 2

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 -90.000
 .000 .000 -90.000

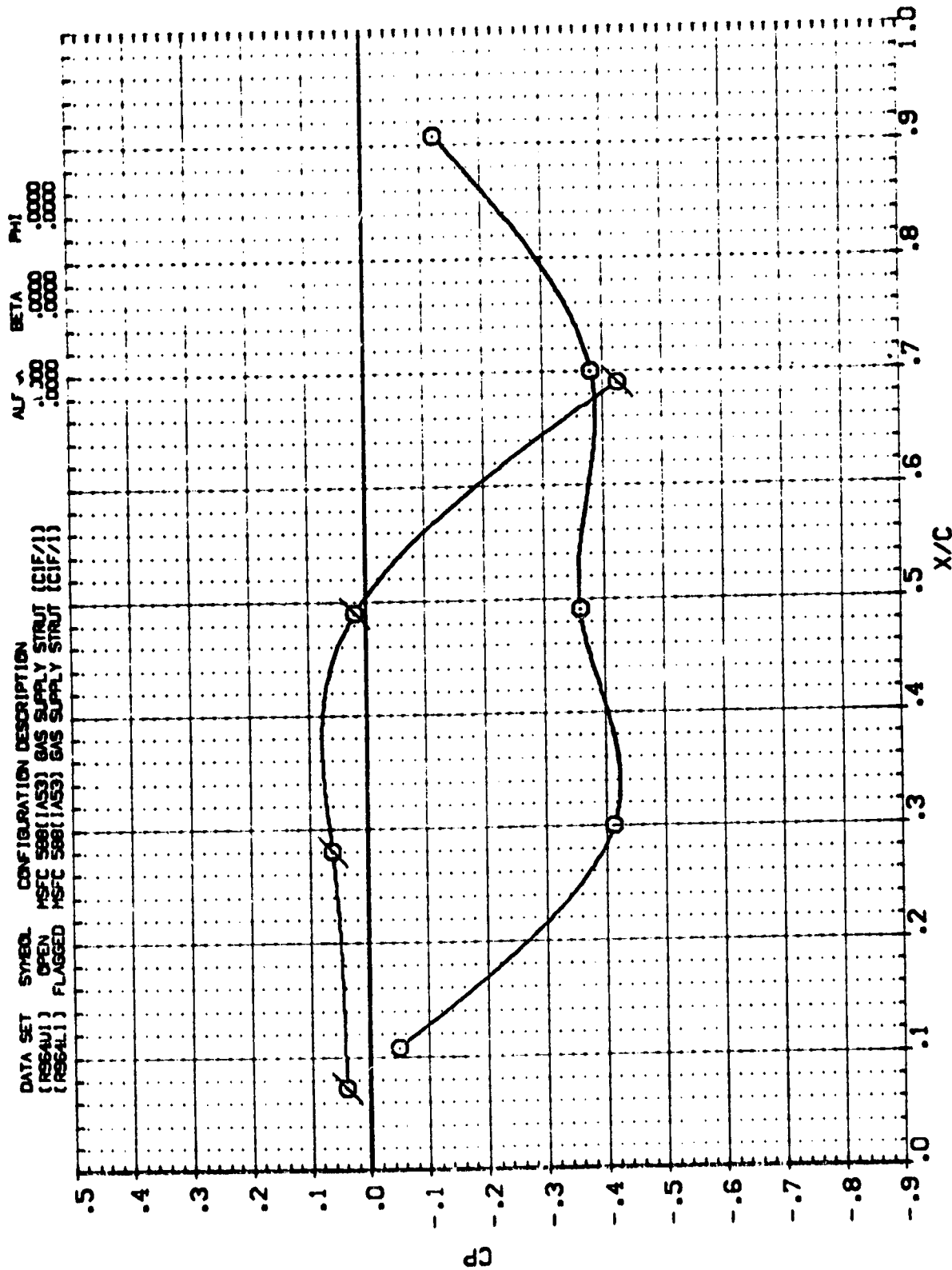
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ORBITER / ET AIR SUPPLY FAIRING EFFECTS WITH SRB SIDE MOUNT

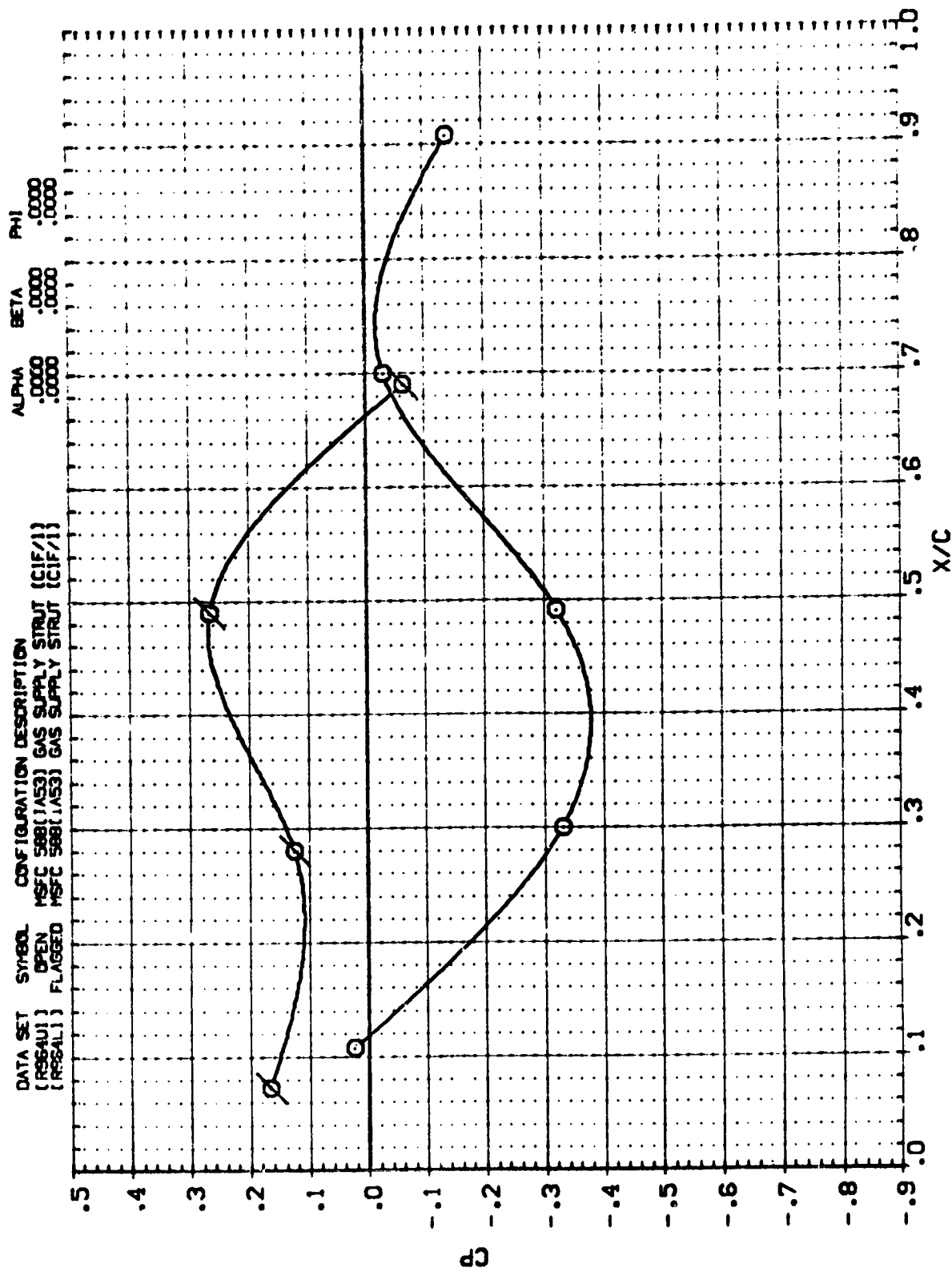
CAJALPHA = .00

SYMBOL 21/8 ALPHA .000 MACH .505
O



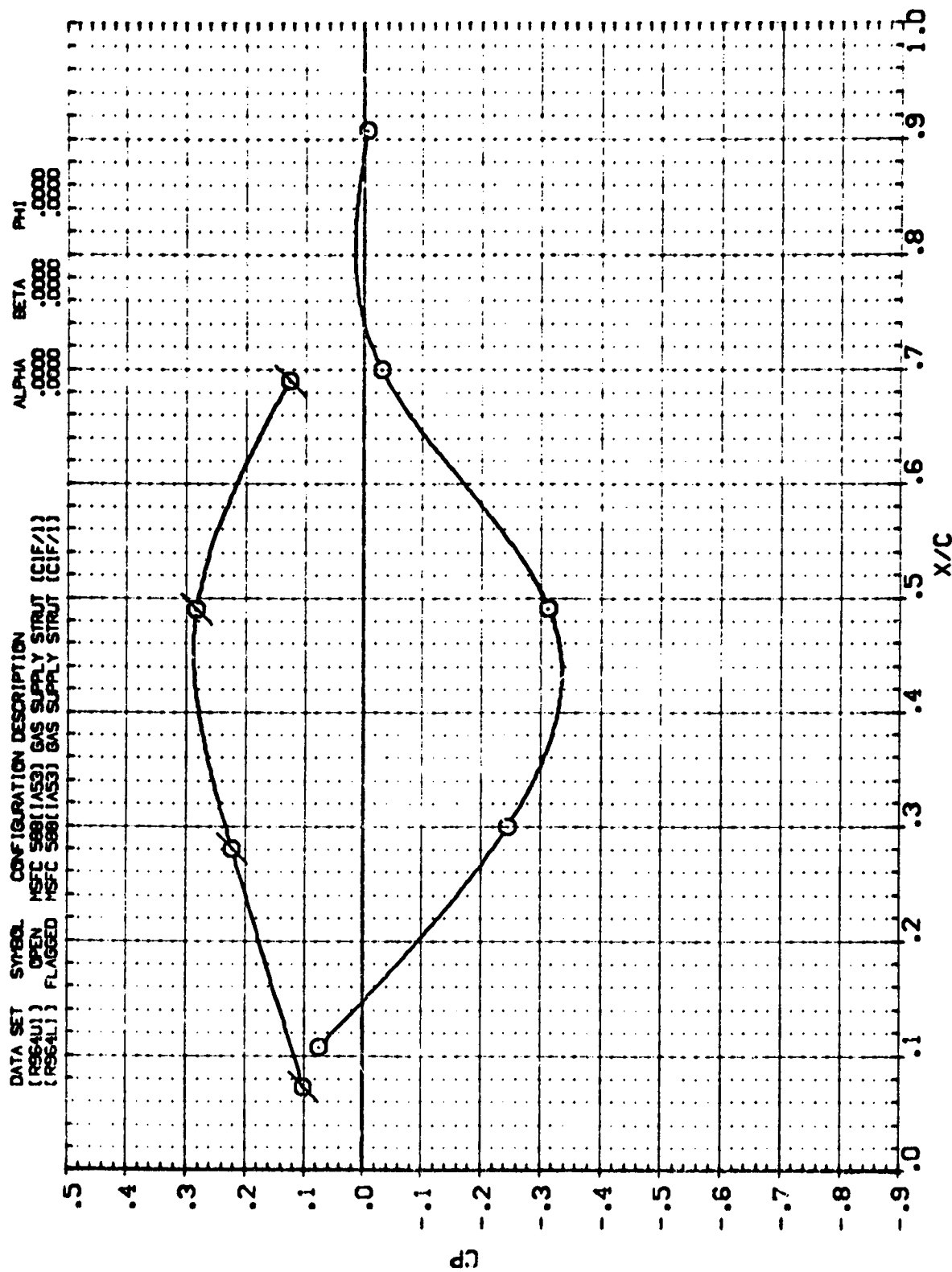
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.197



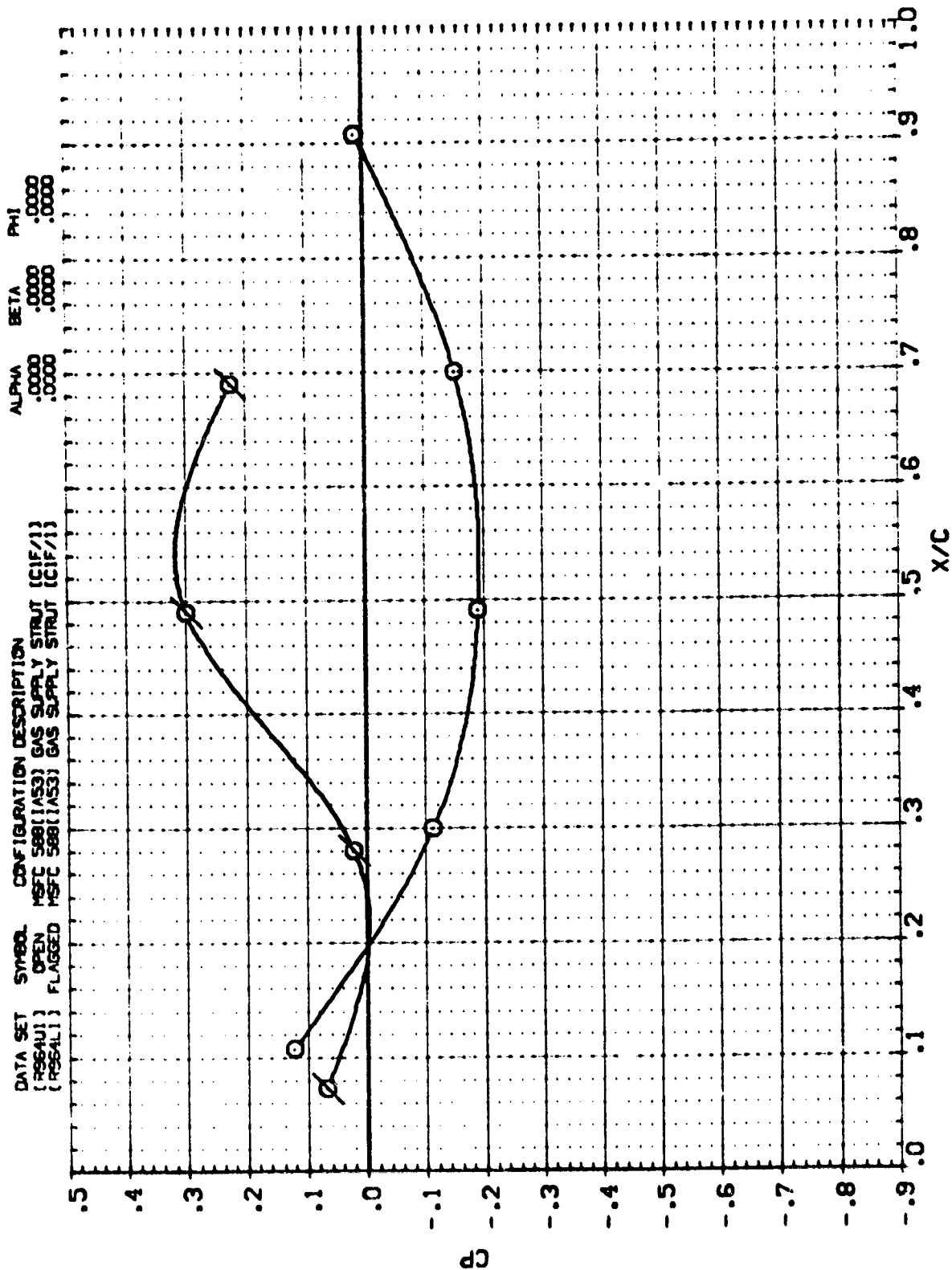
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.456



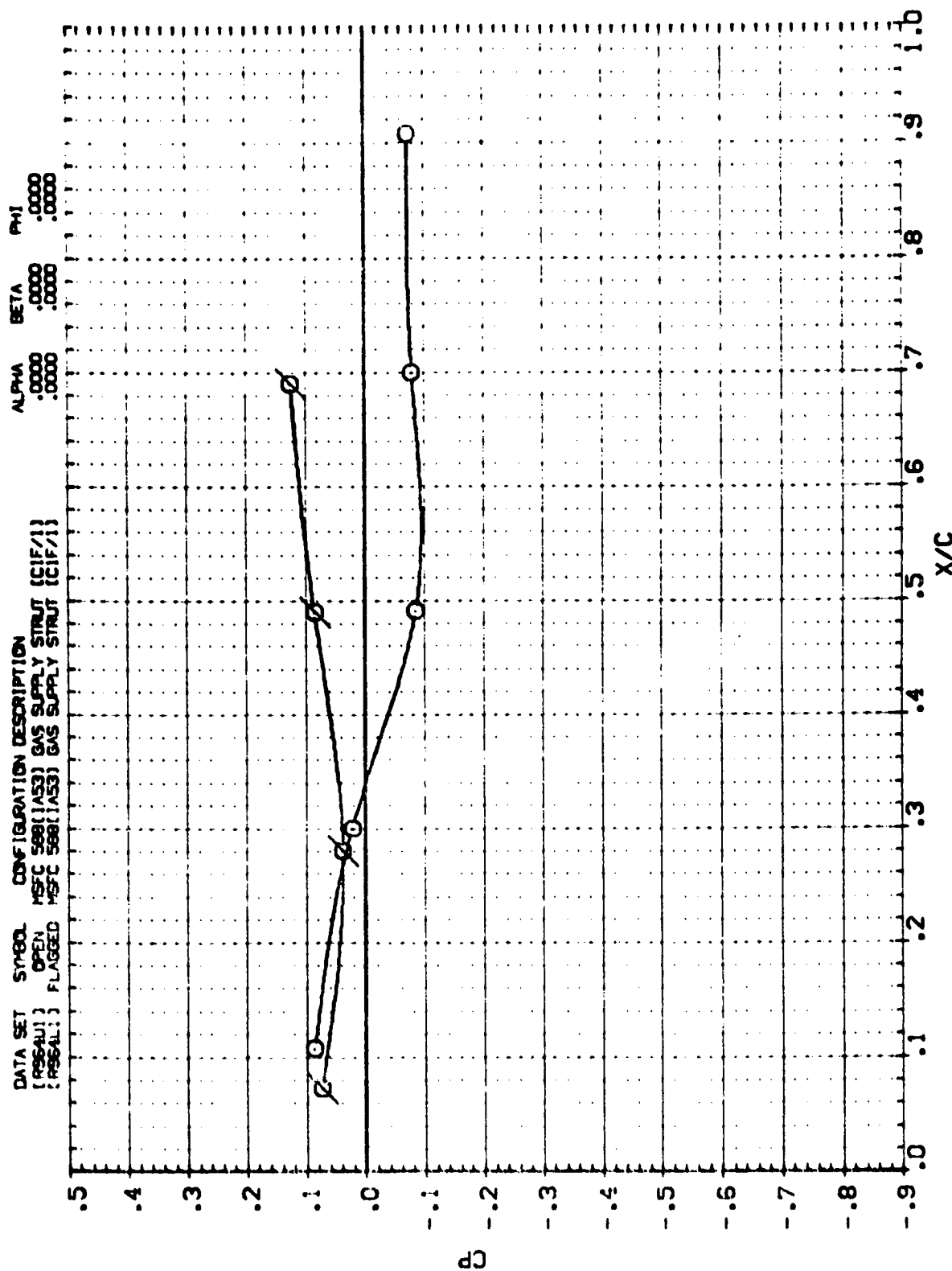
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 1.698
O



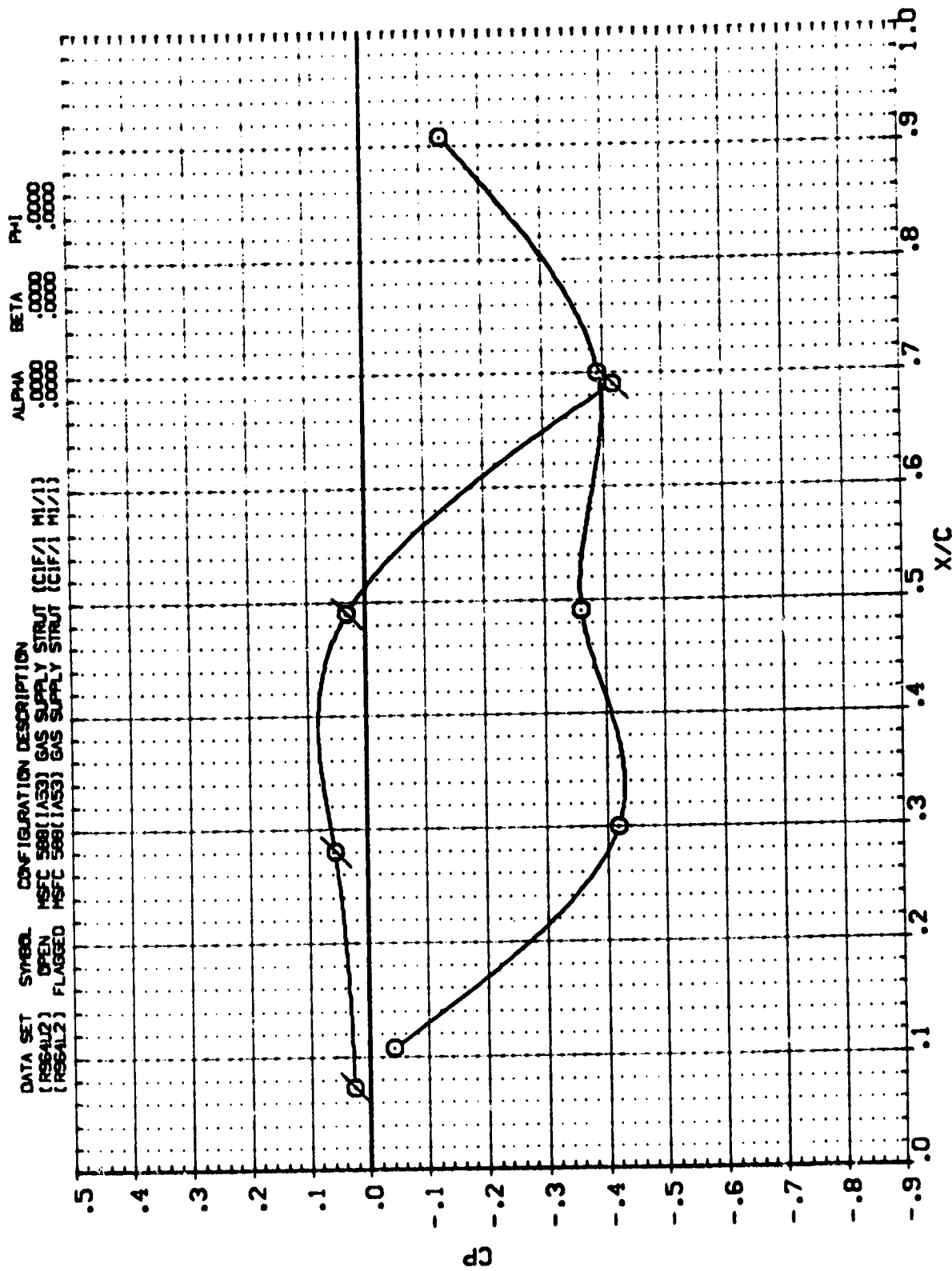
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 2Y/B ALPHA MACH
 O .511 .000 2.990



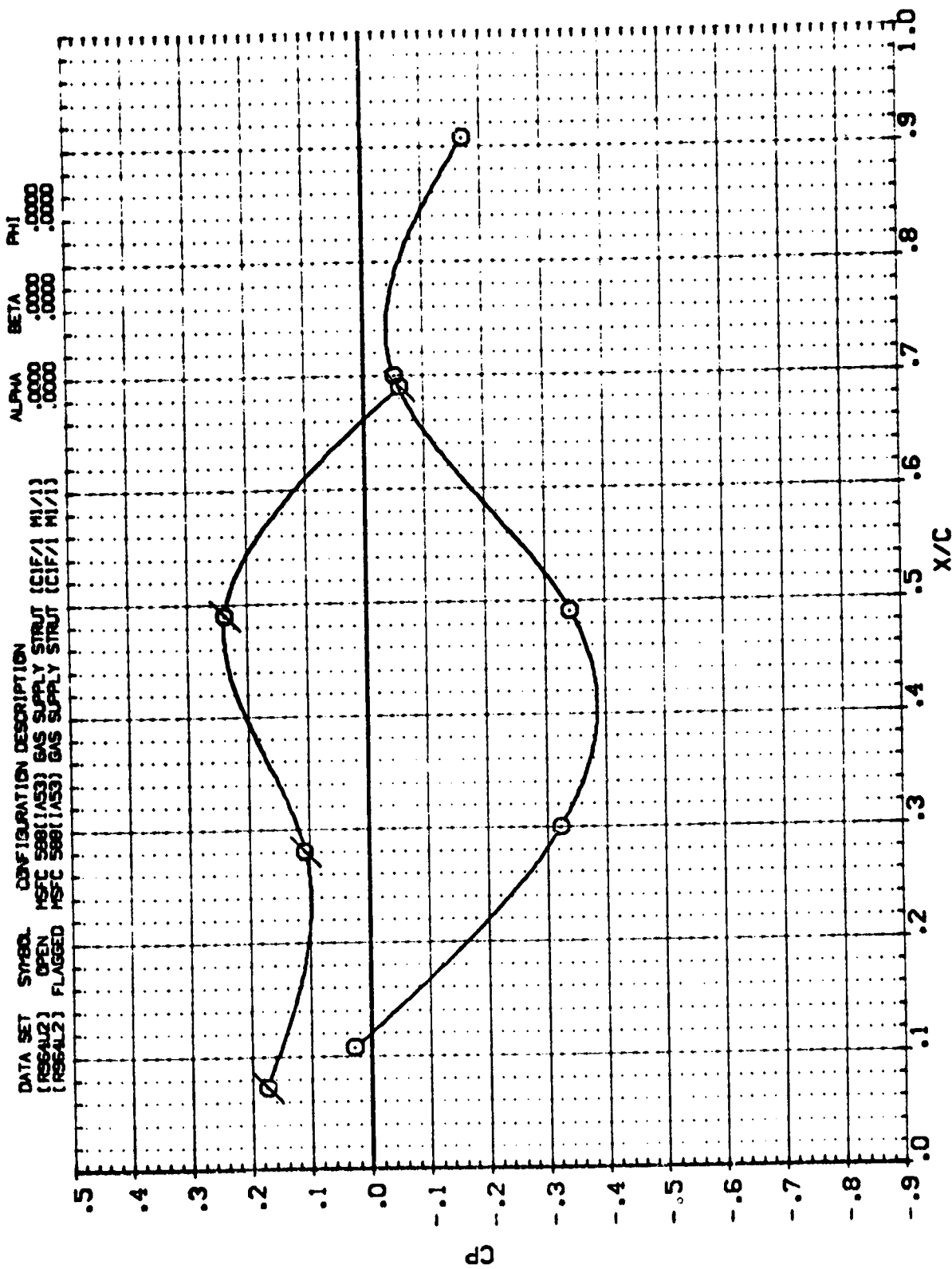
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 .905



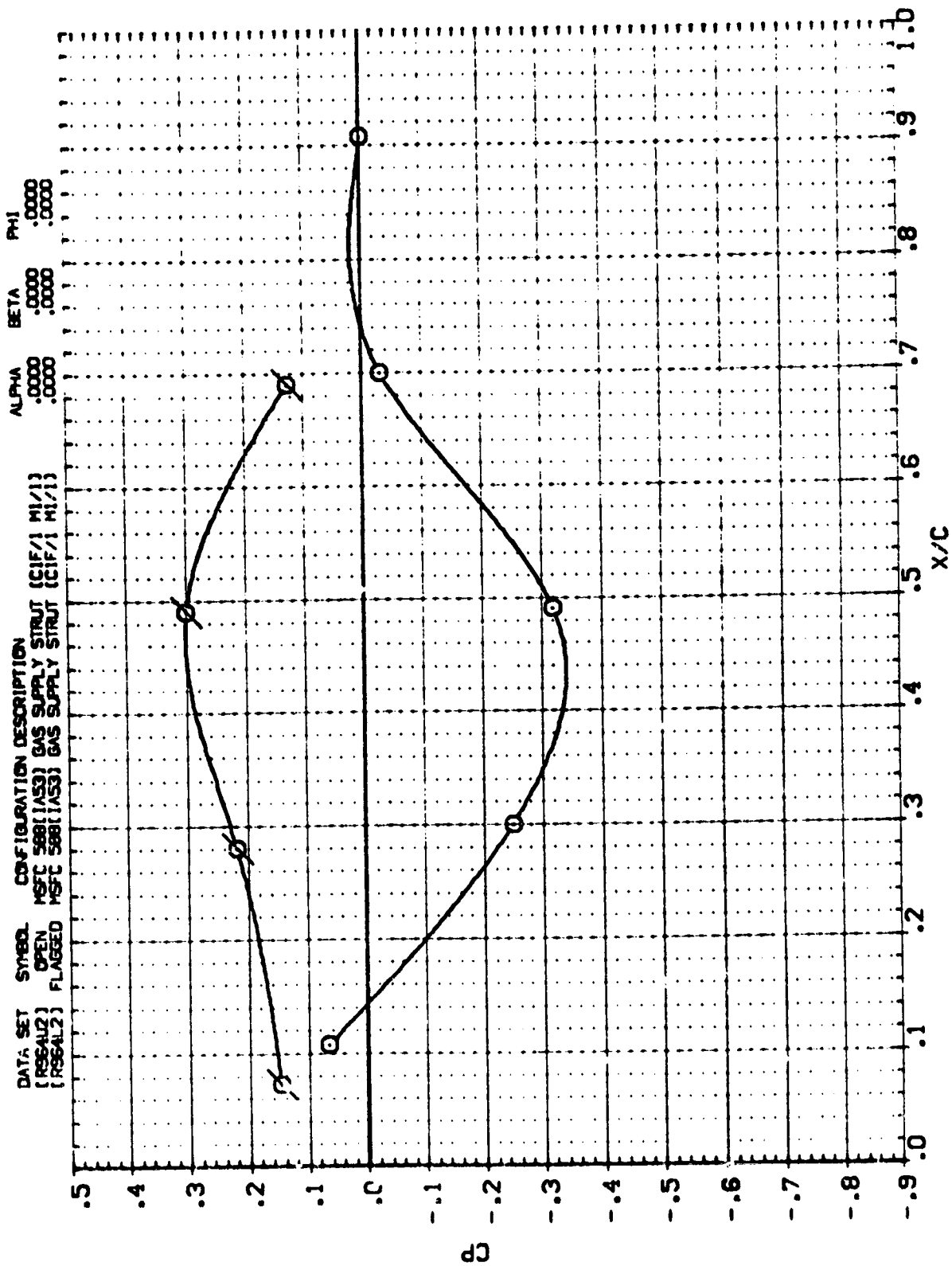
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.201



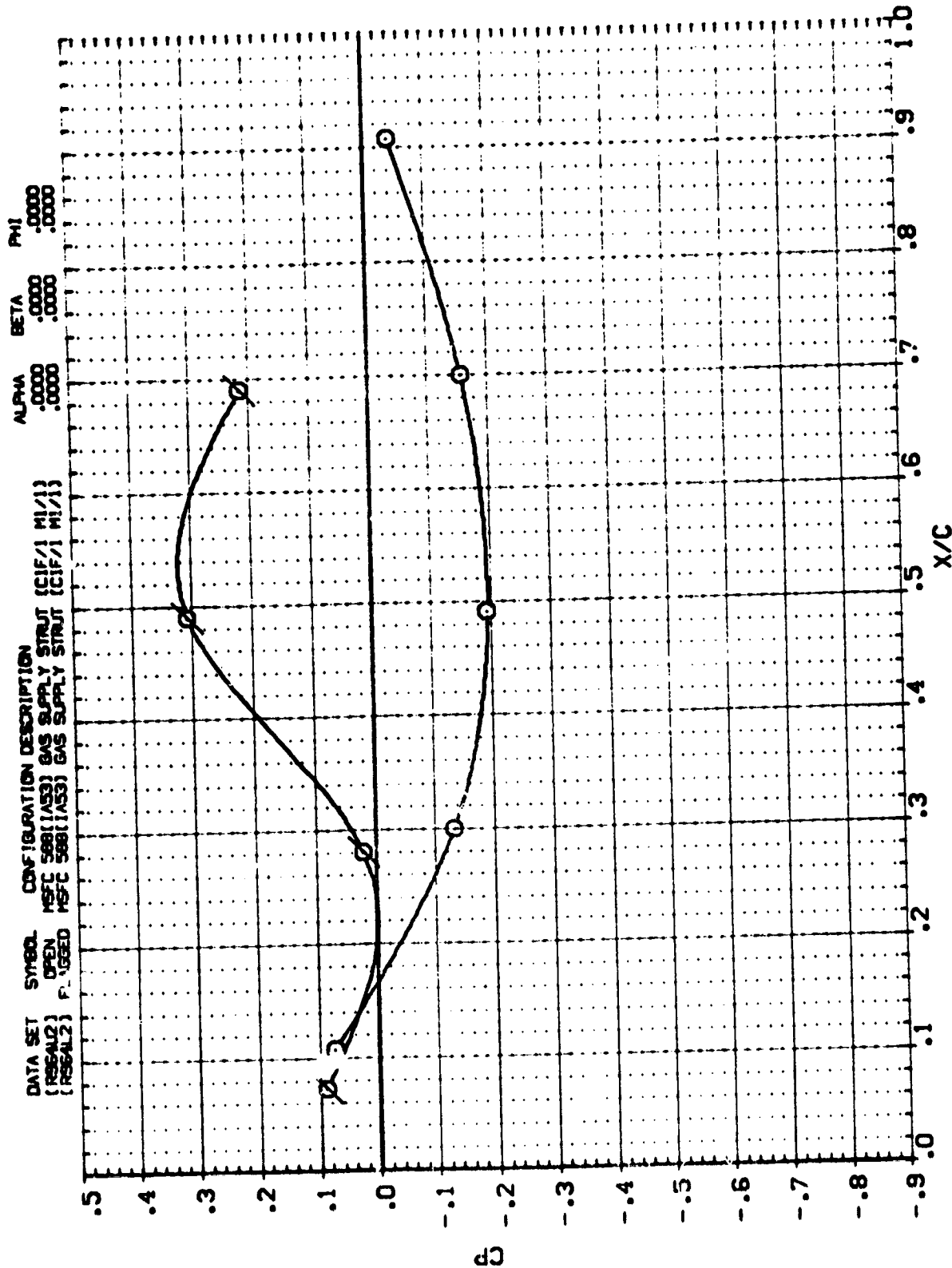
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.464



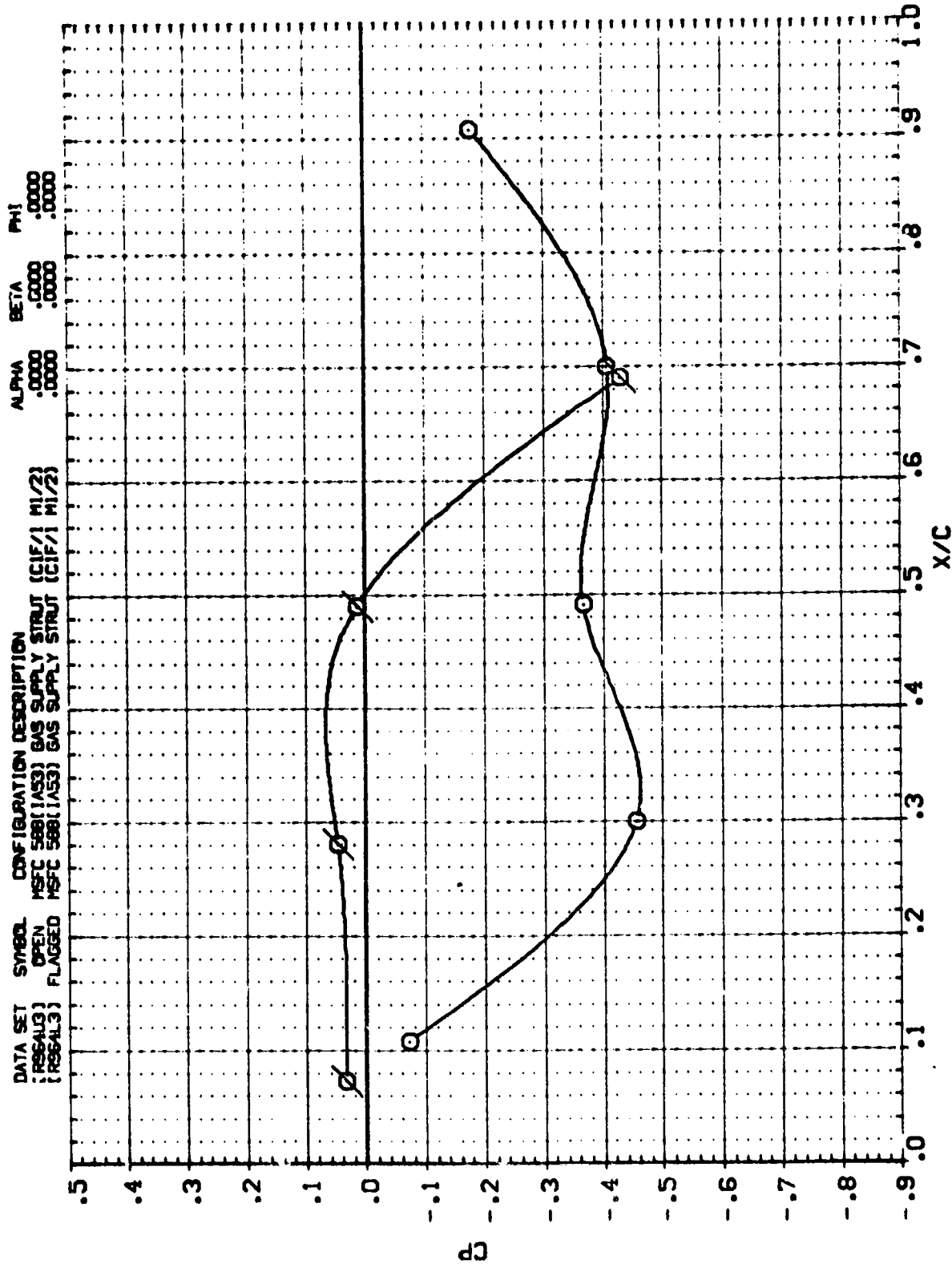
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.961



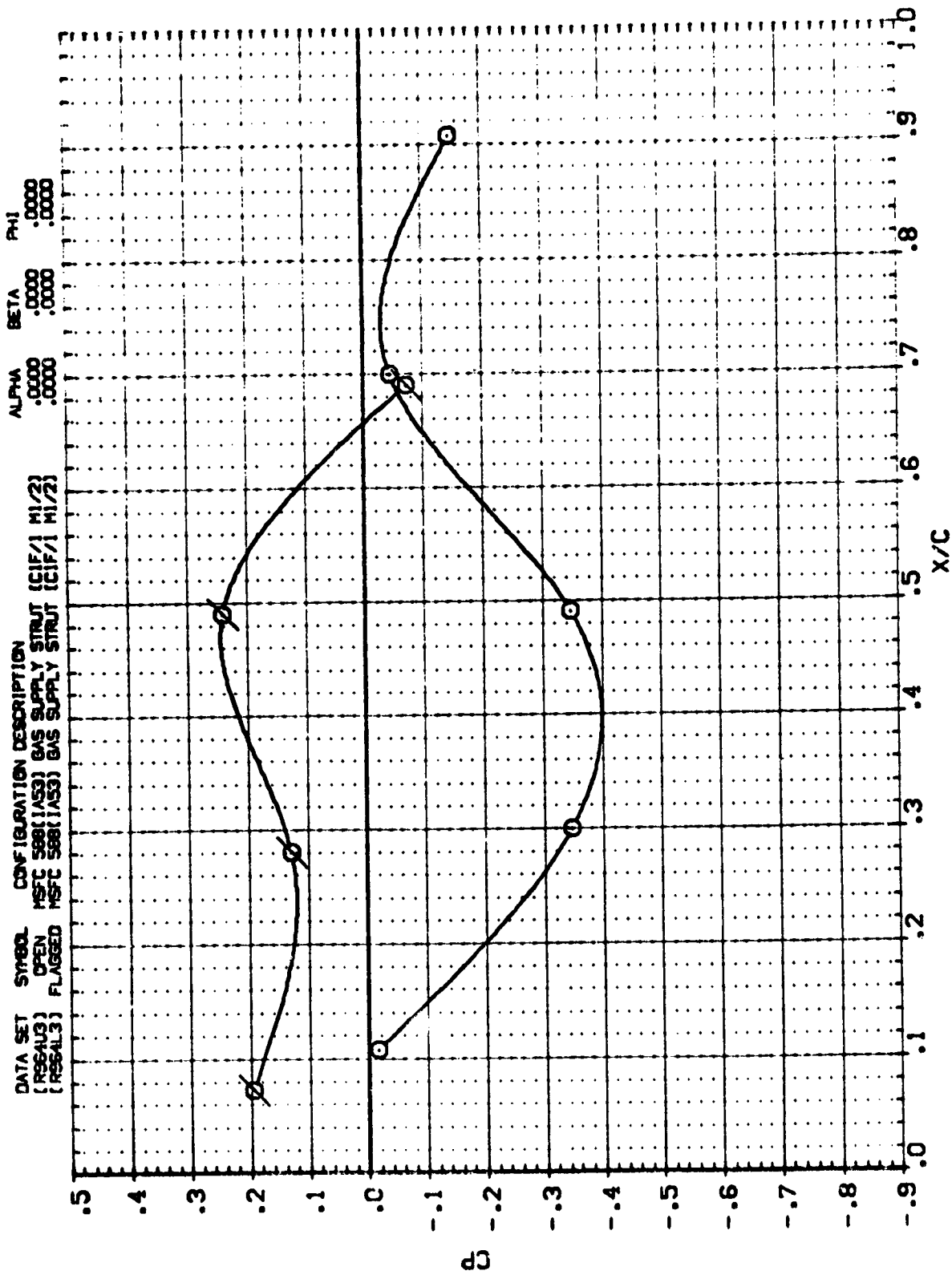
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 2V/8 ALPHA MACH
 O .511 .000 .901



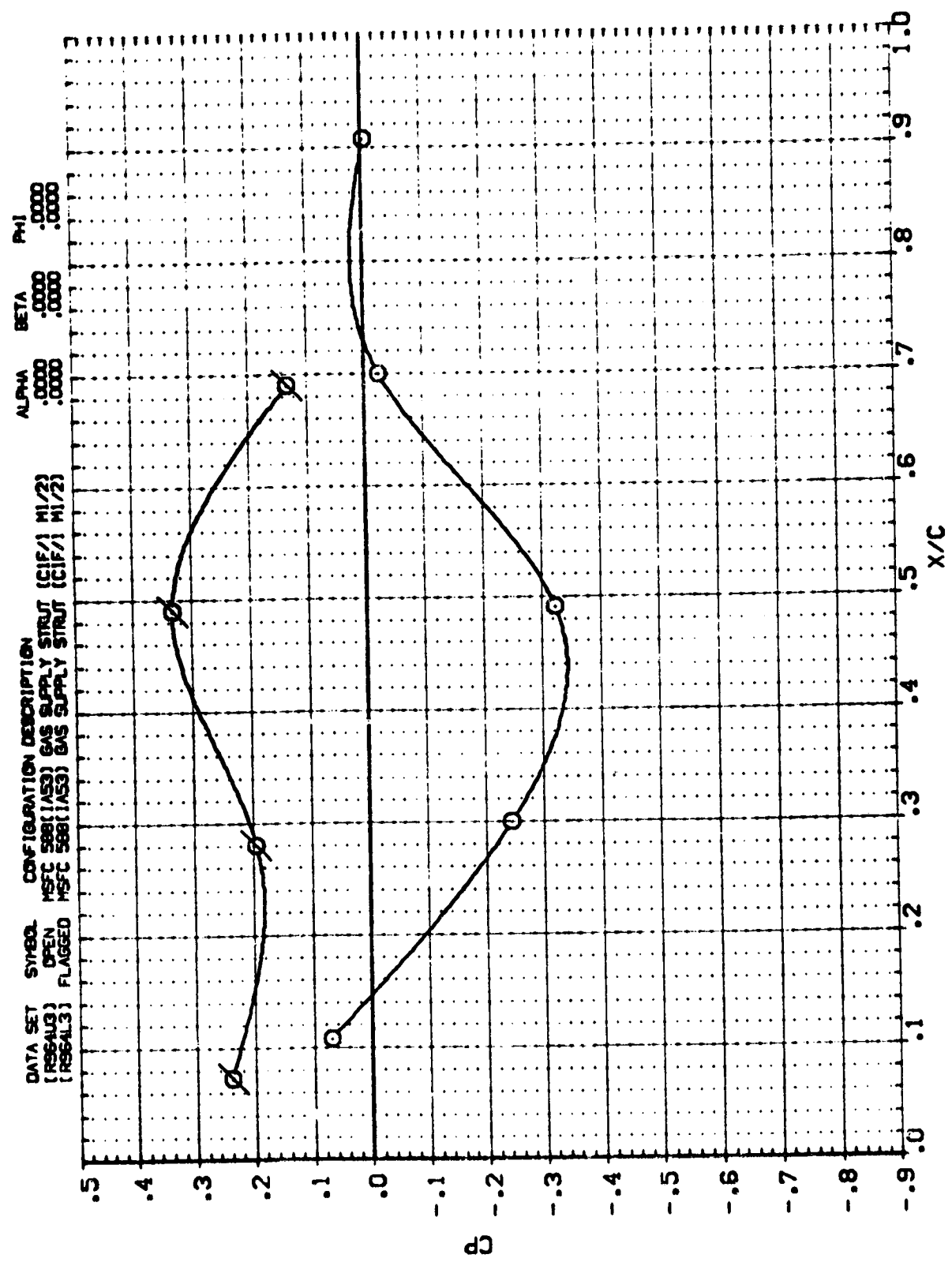
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .51: .000 1.199



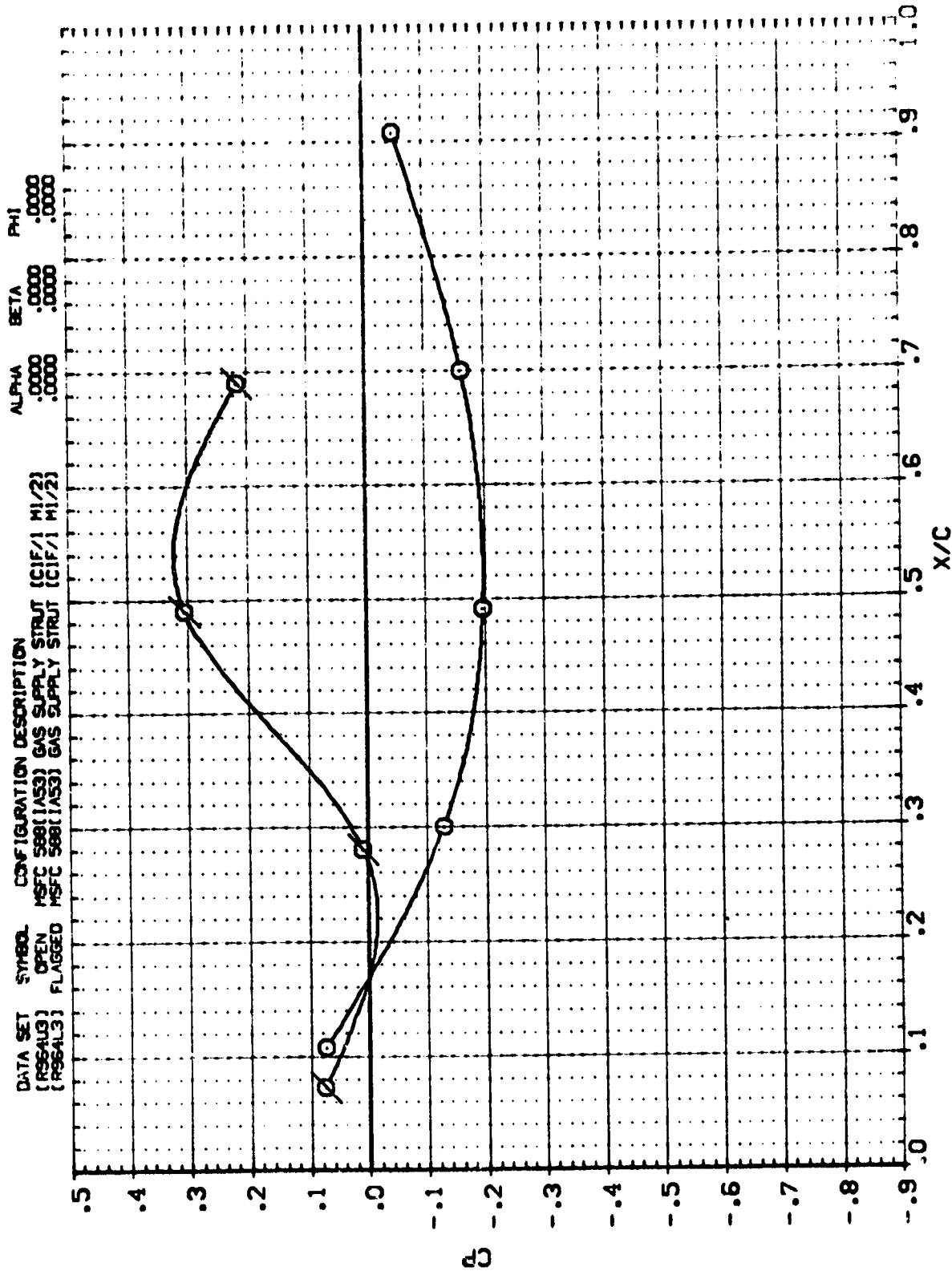
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 1.456
 O



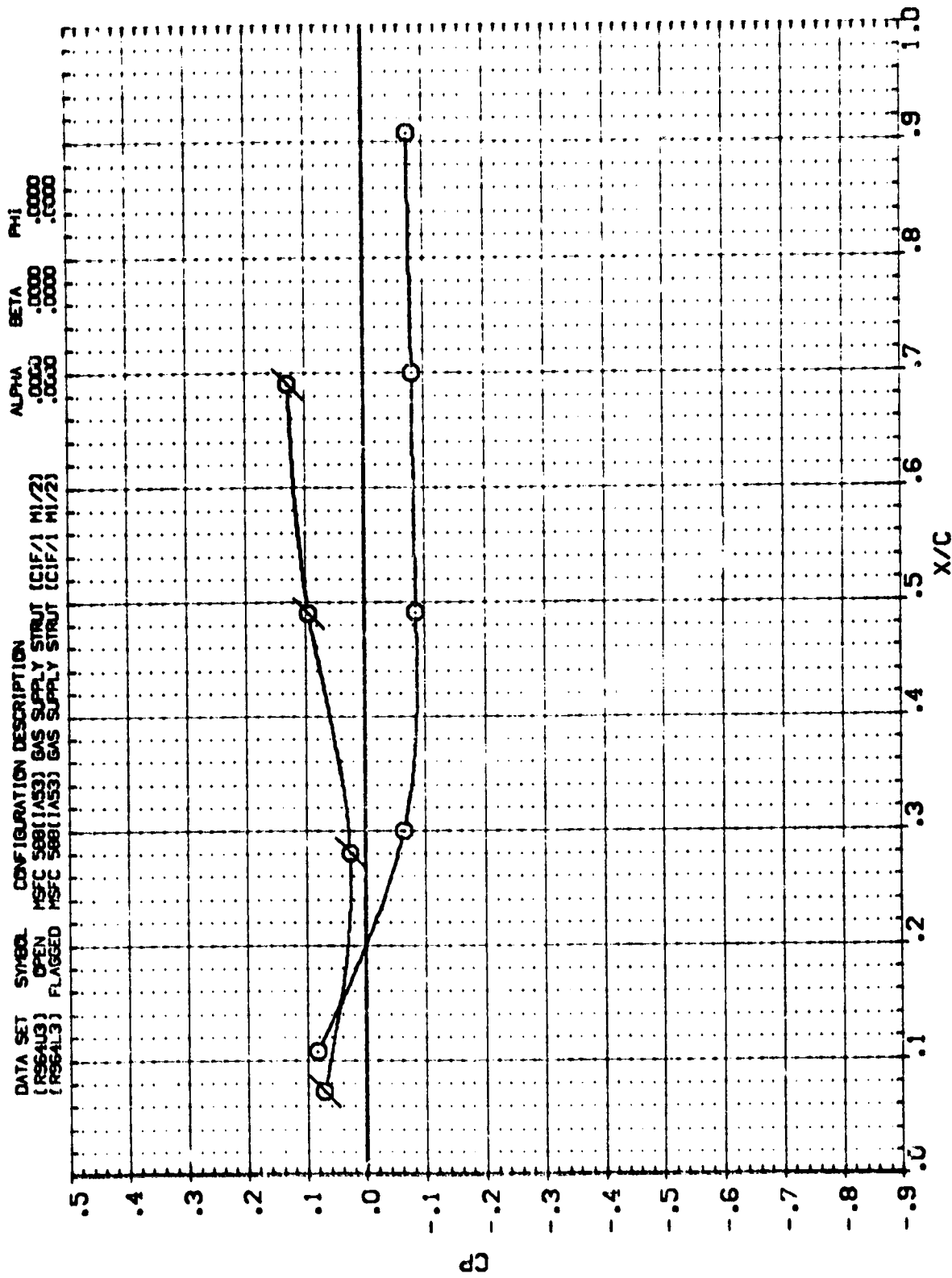
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/B ALPHA MACH
 O .511 .000 1.952



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 2.550
O .511

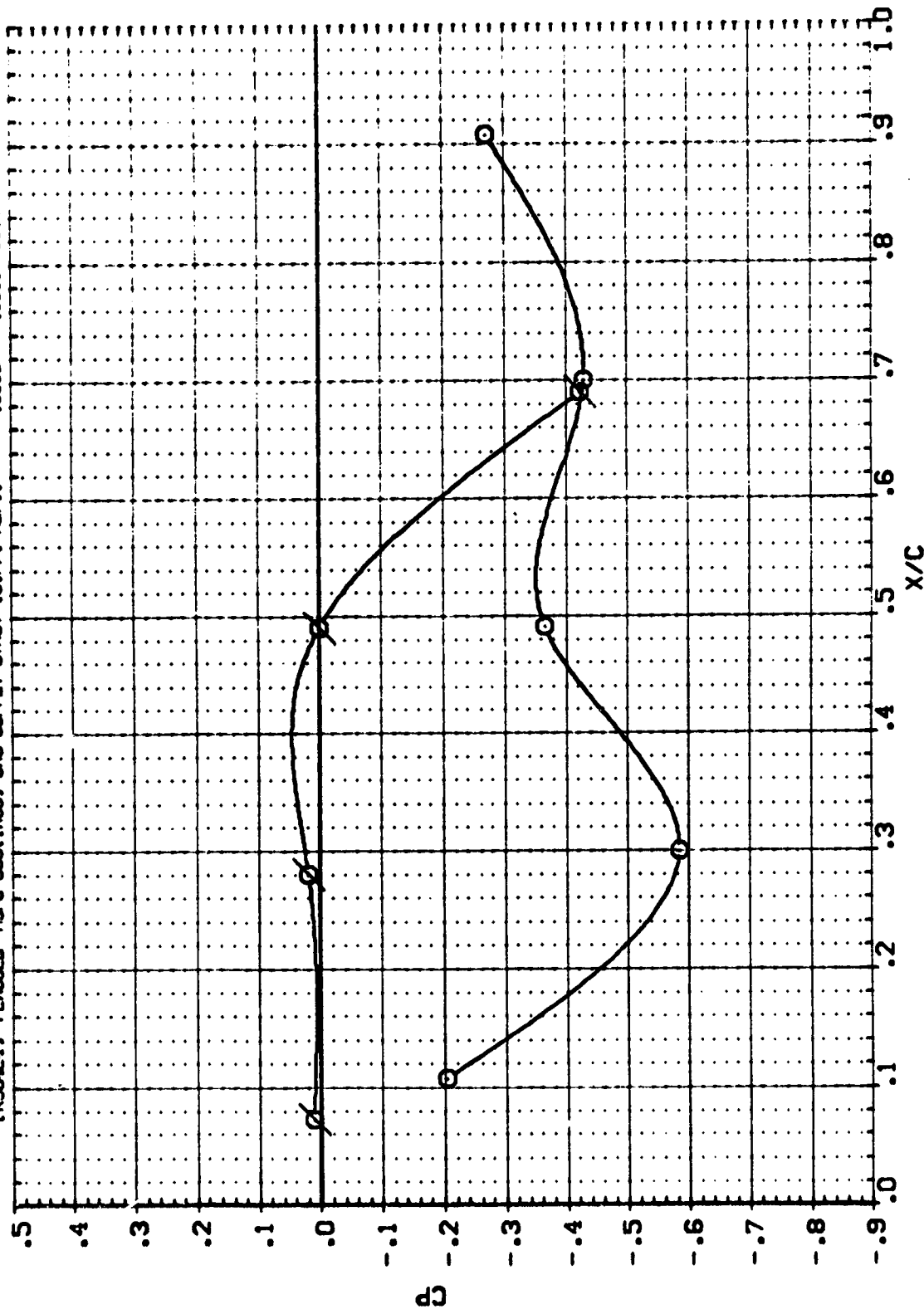


PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 .857

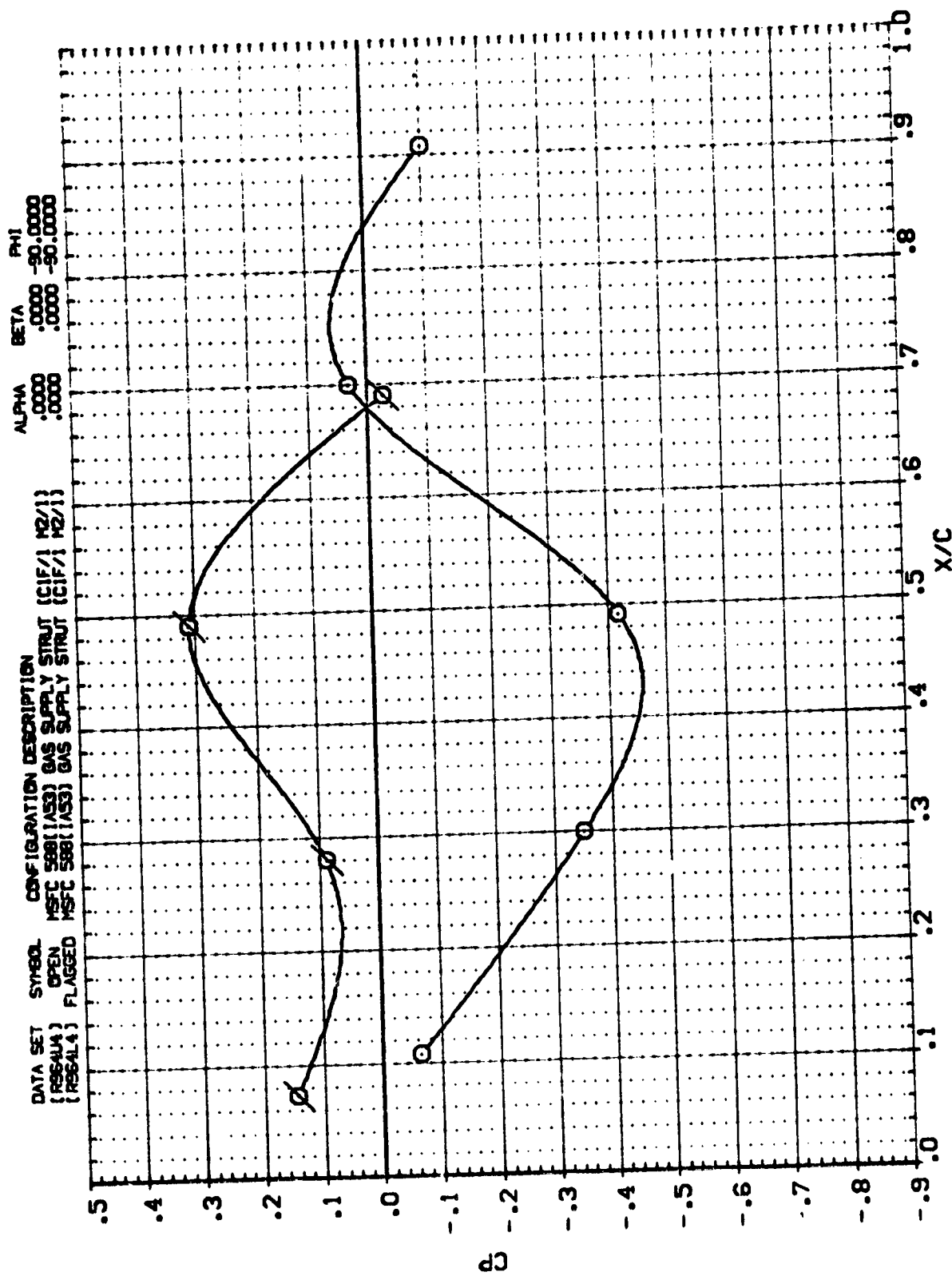
DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (R554A4) OPEN MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 M2/1)
 (R554A4) FLAGGED MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 M2/1)

ALPHA BETA PHI
 .000 .000 -90.0000
 .000 .000 -90.0000



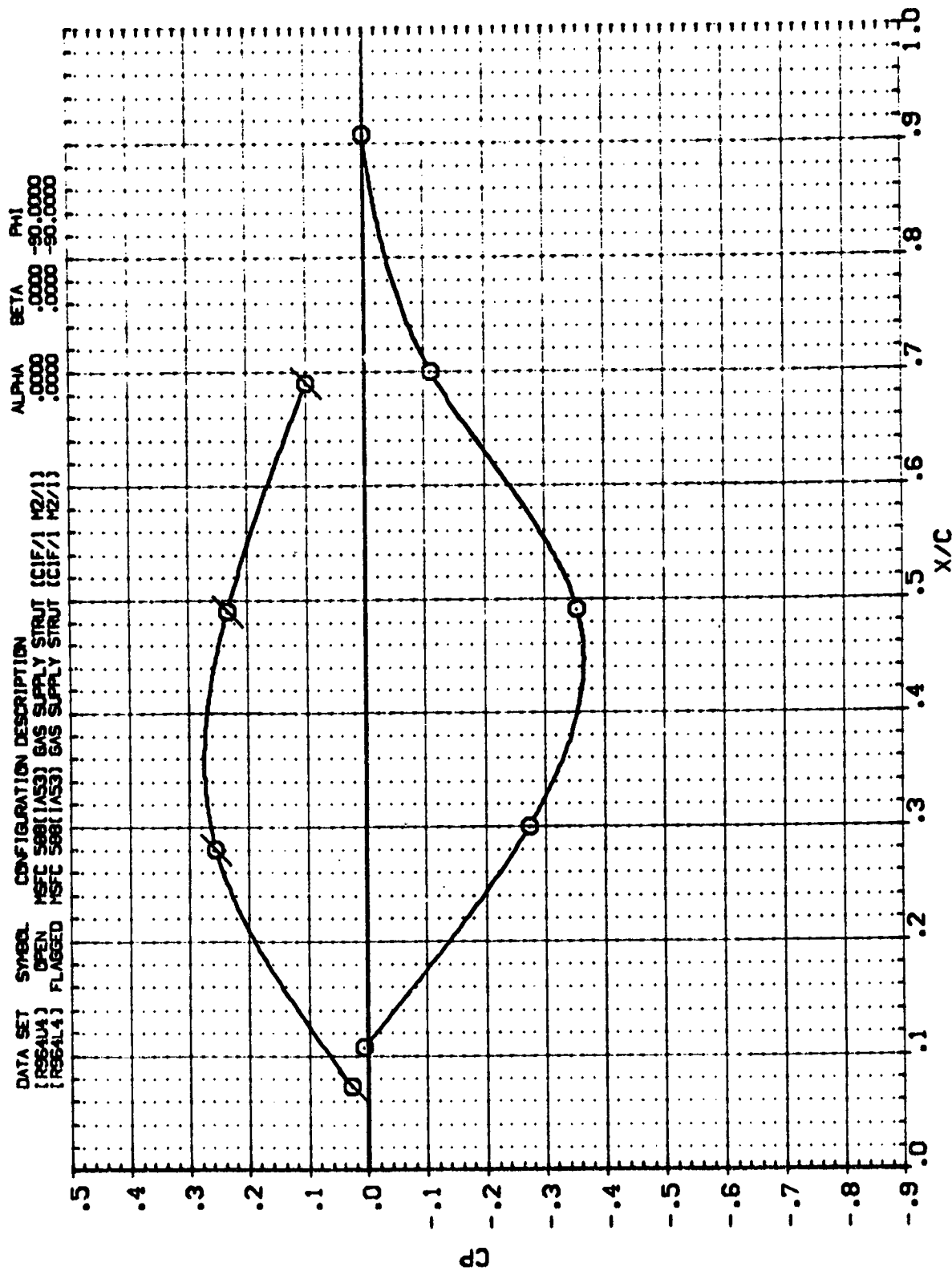
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
O .511 .000 1.207



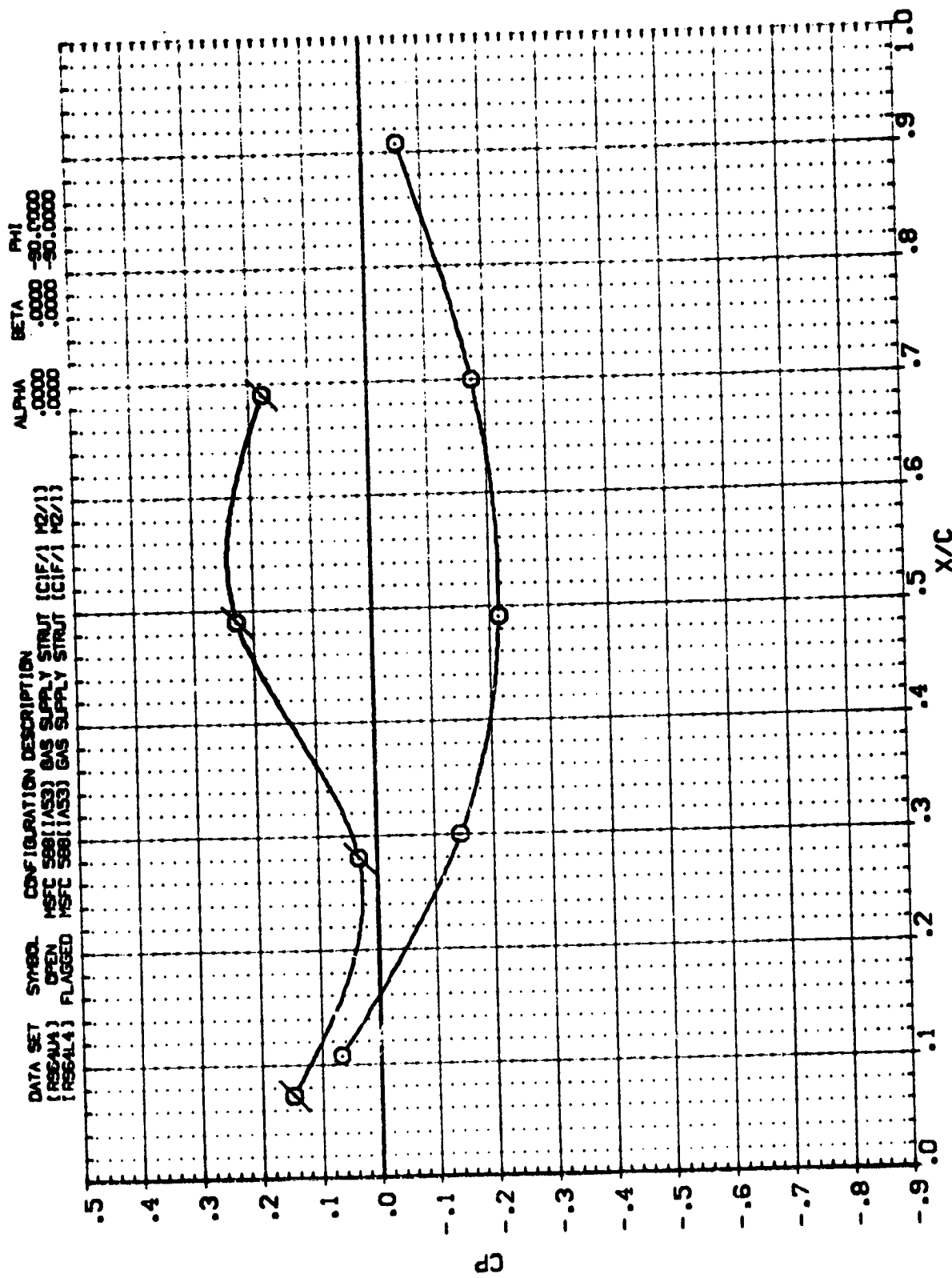
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/B ALPHA MACH
 O .511 .000 1.464



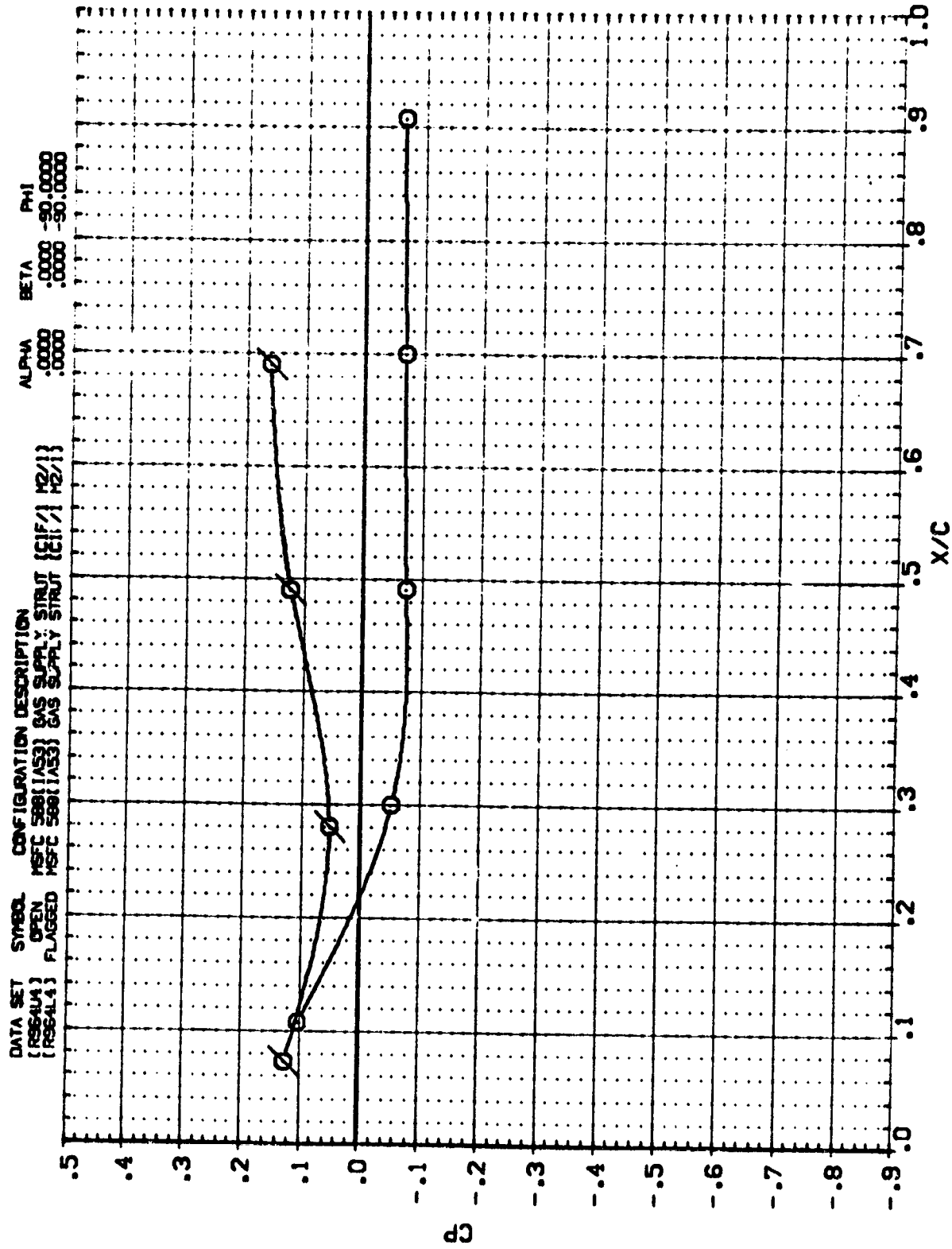
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 27/8 ALPHA MACH
 O .511 .000 1.950



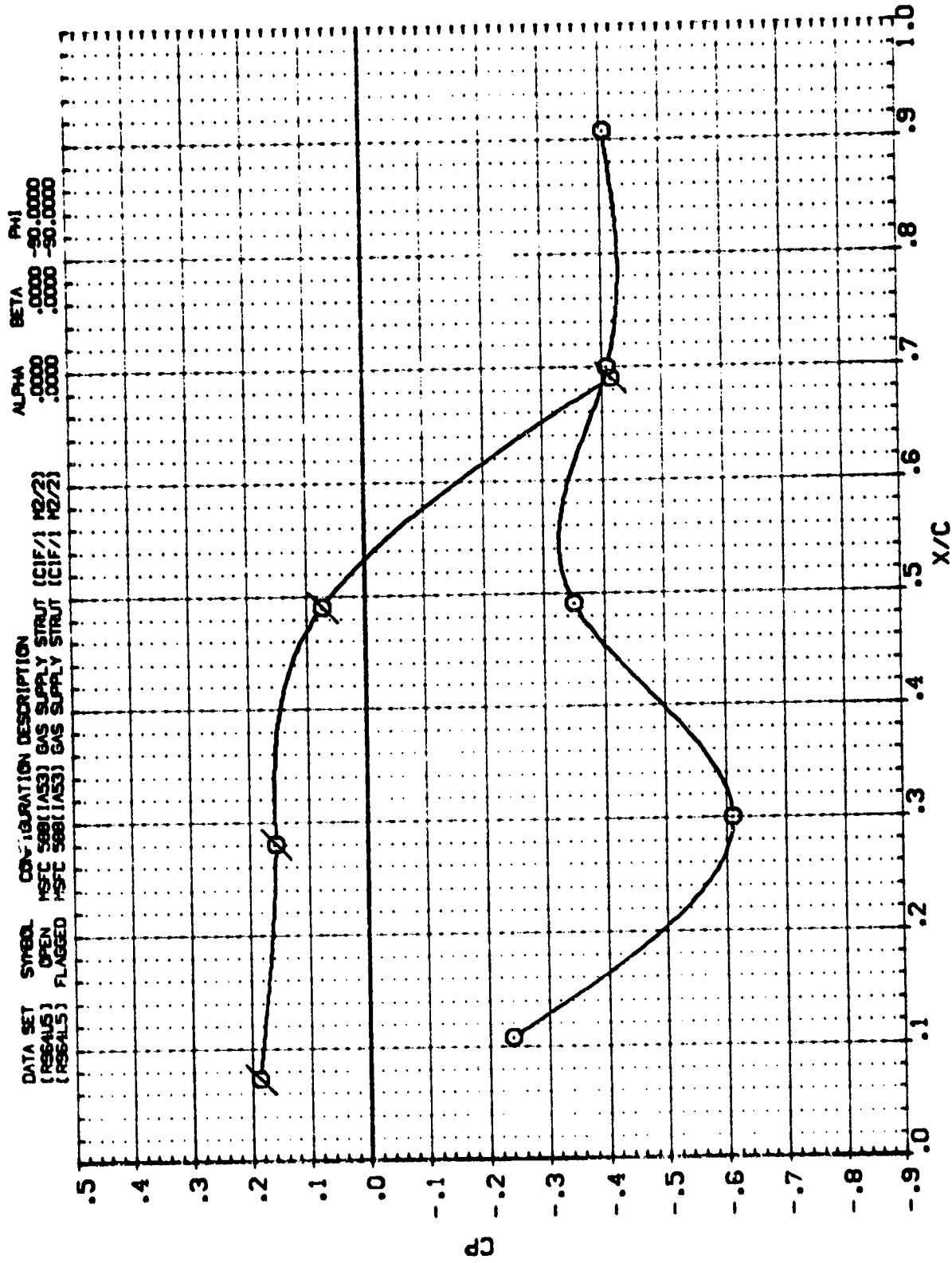
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 27/B ALPHA MACH
 O .511 .000 2.990



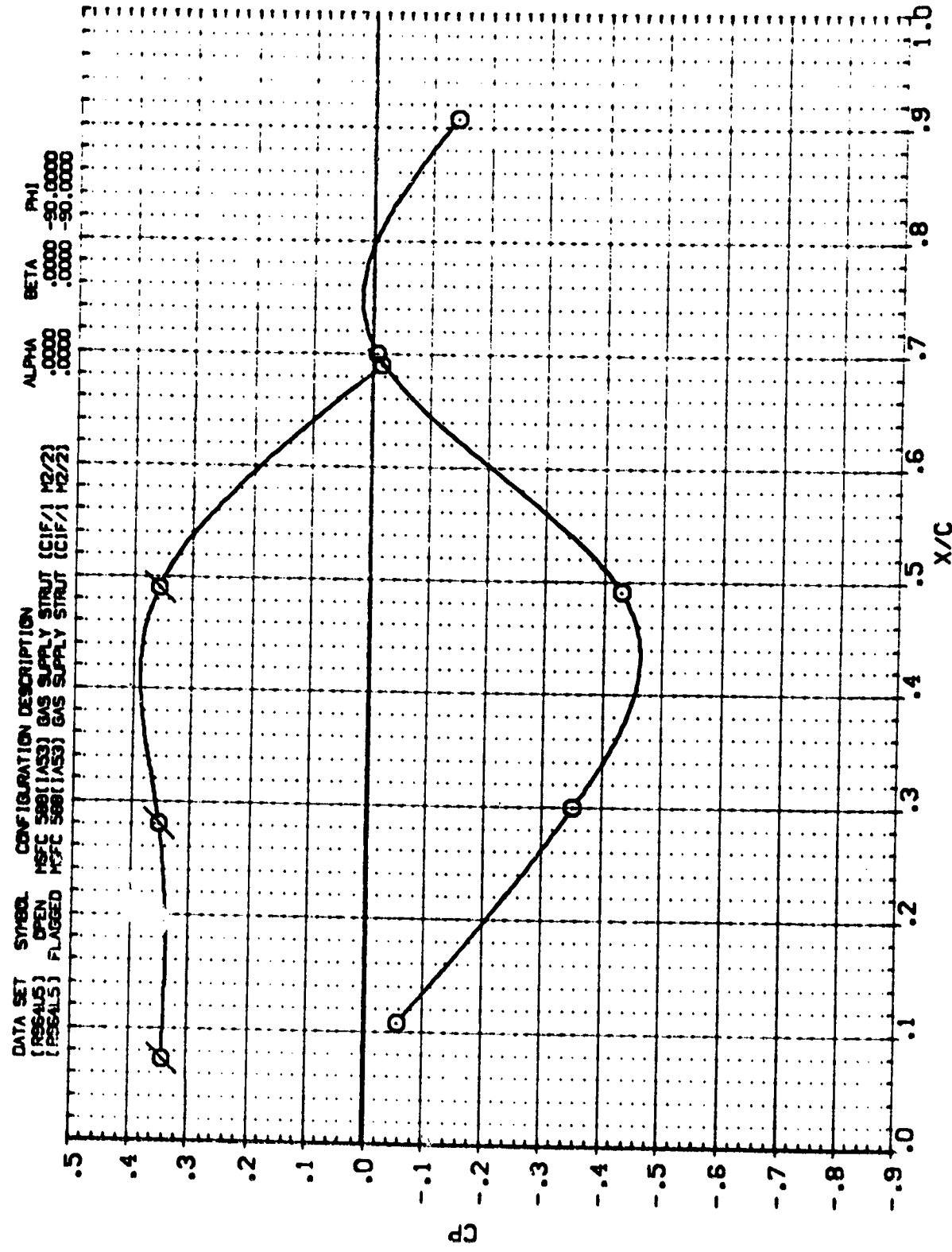
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/B ALPHA MACH
O .511 .502



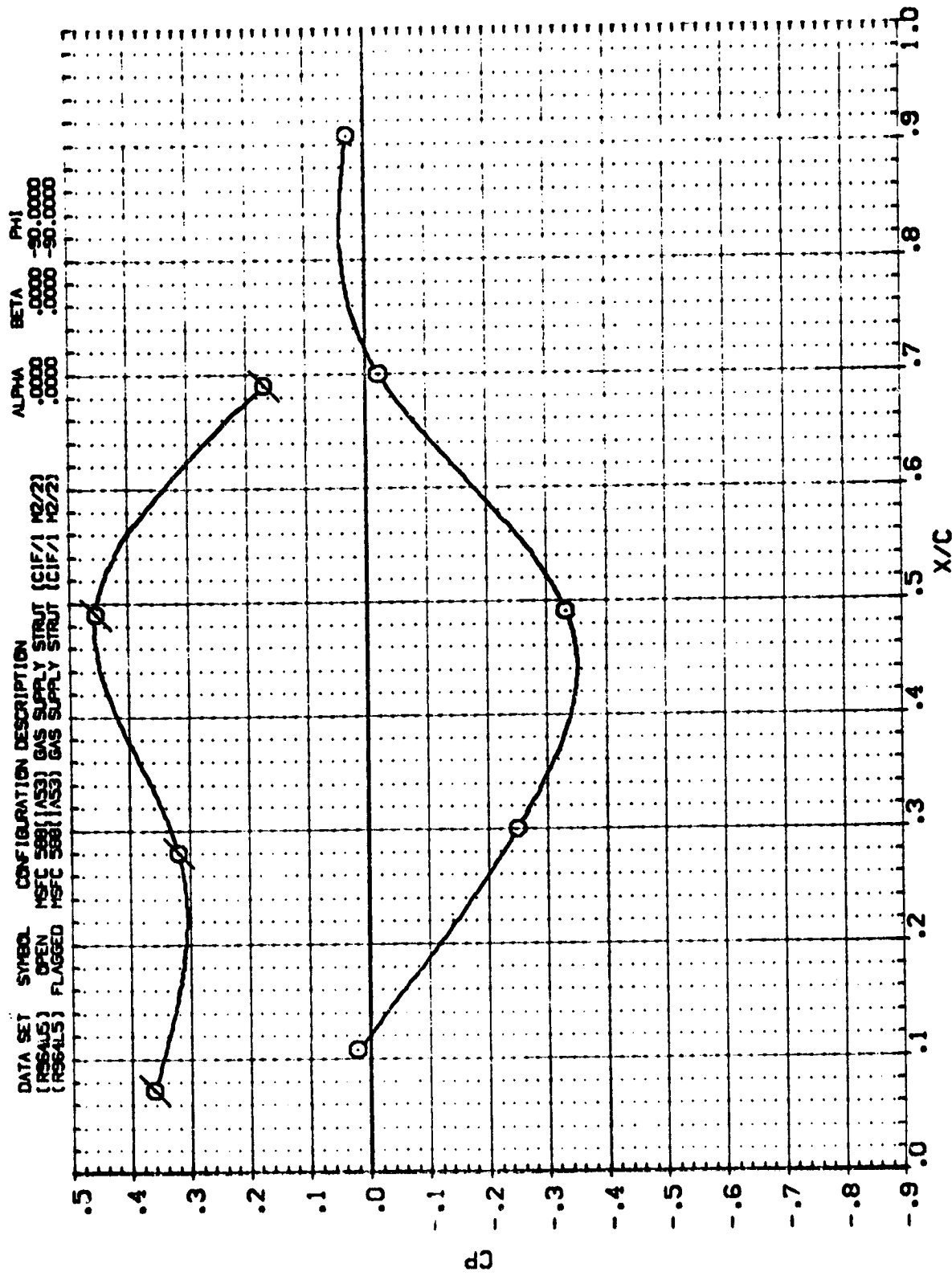
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.199



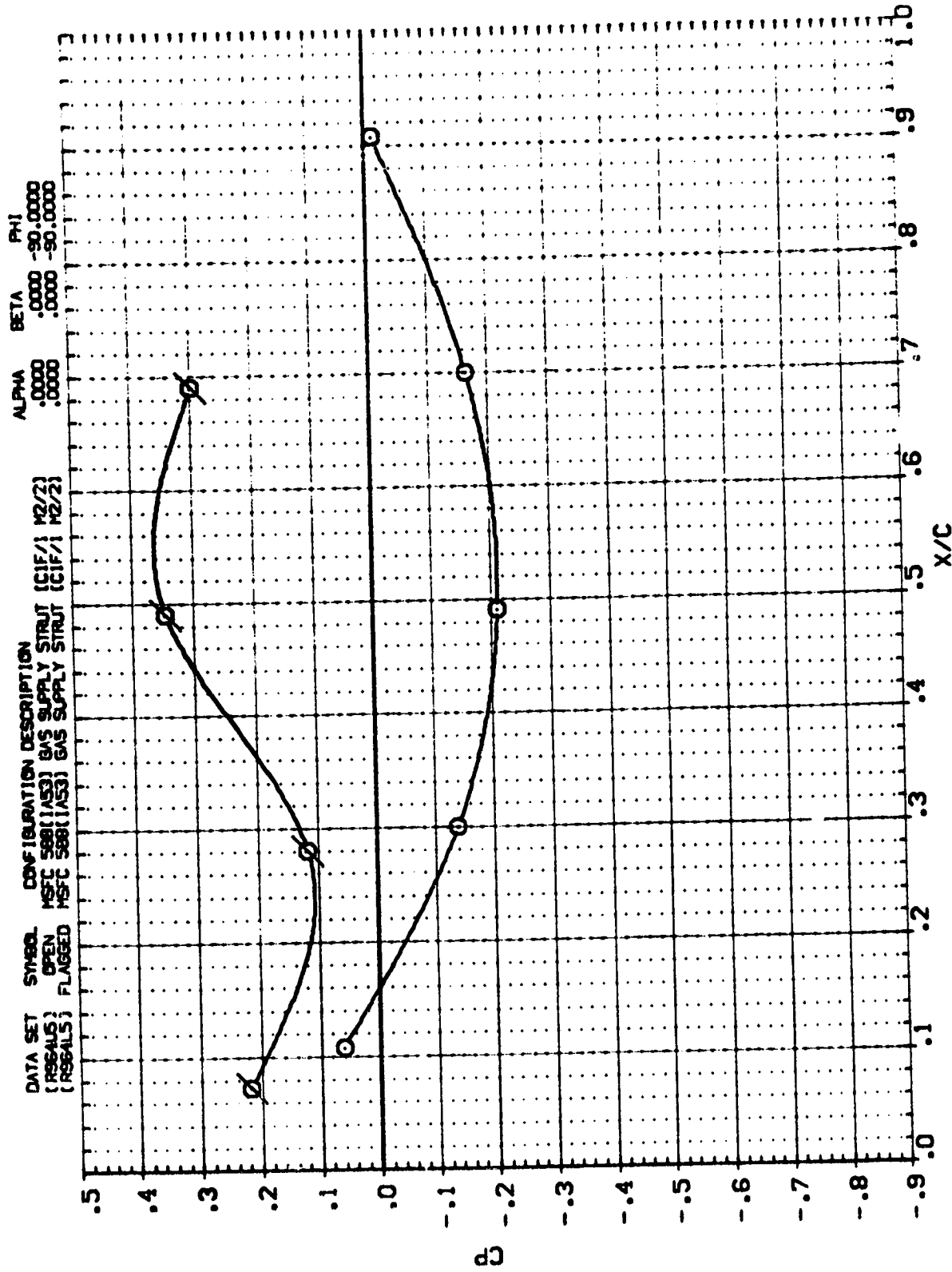
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .51: .000 1.457



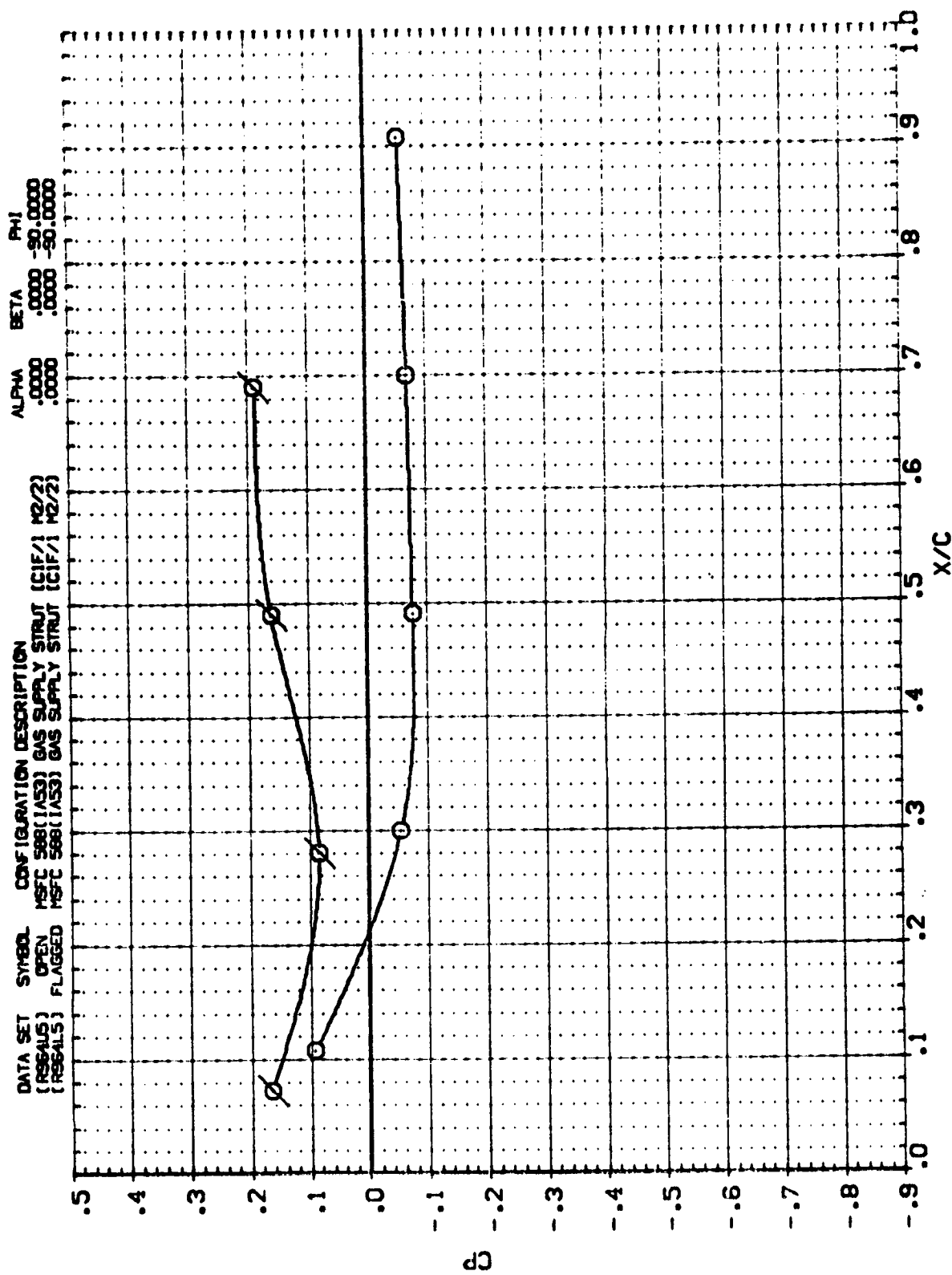
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/B ALPHA MACH
 O .511 .000 1.949



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

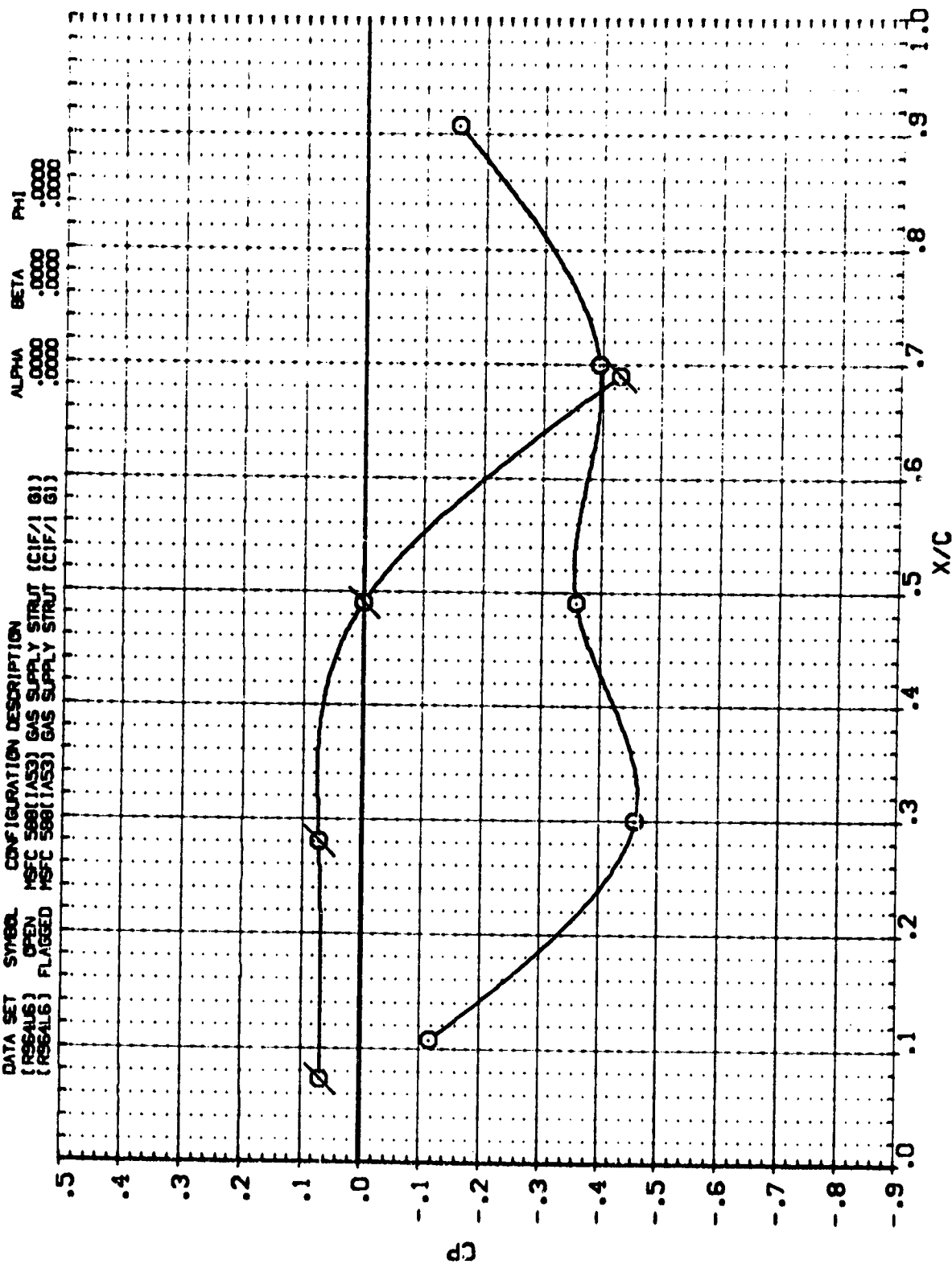
SYMBOL 21/9 ALPHA .000 MACH 2.950
O .511



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

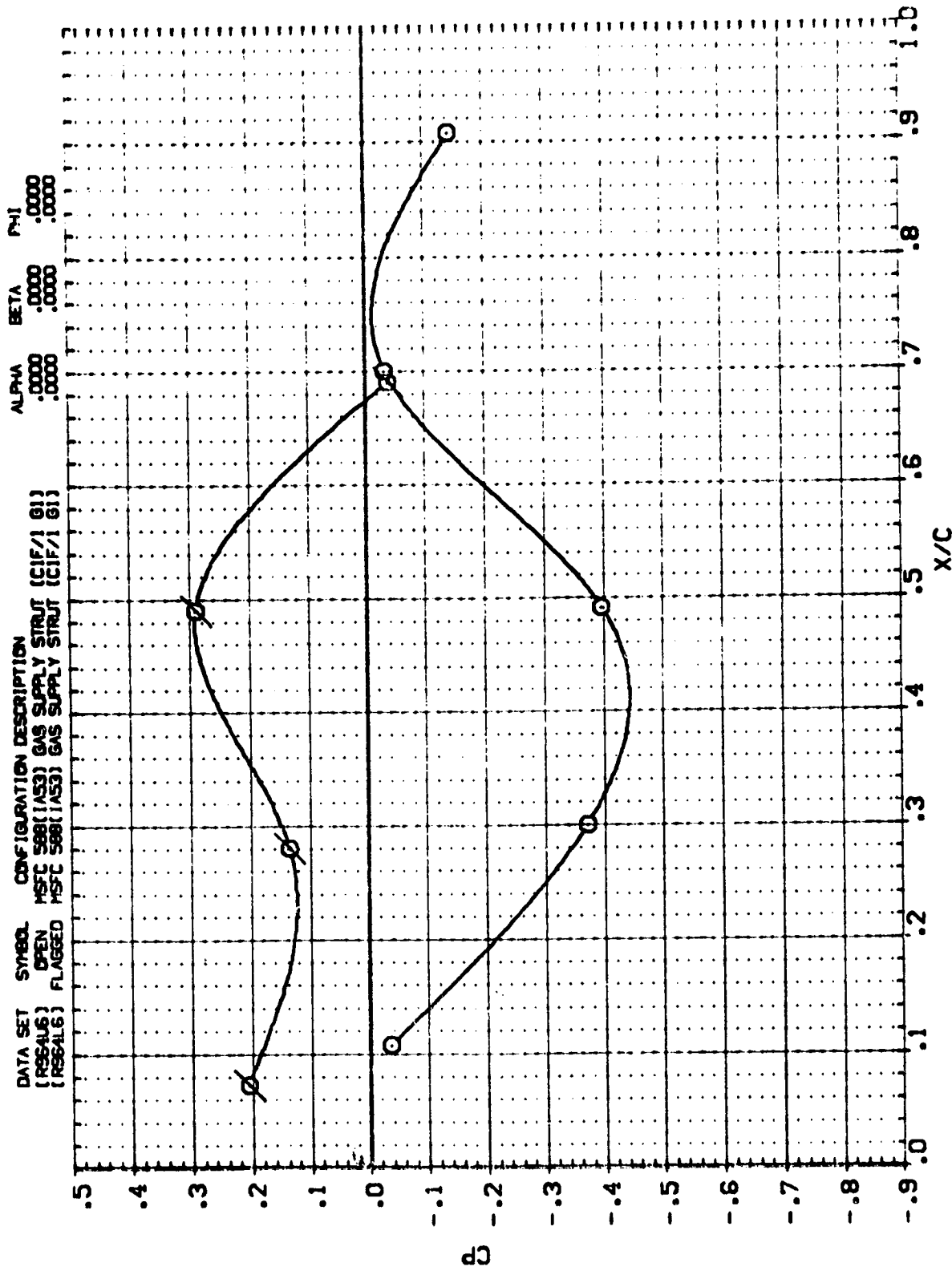
SYMBOL 21/8 ALPHA MACH
 O .511 .000 .906

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 (RS6416) OPEN MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)
 (RS6416) FLAGGED MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)



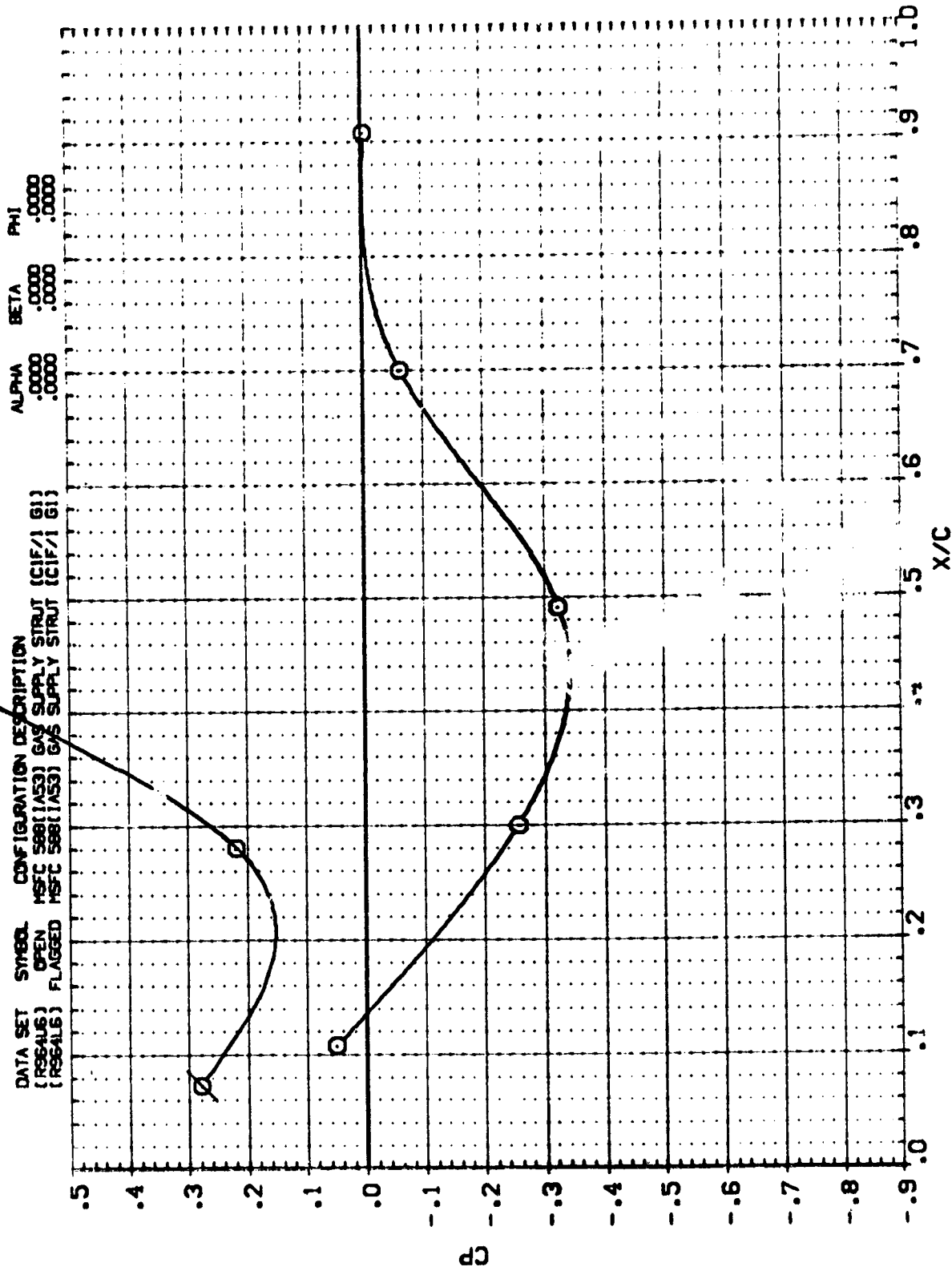
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 2Y/B ALPHA MACH
 O .511 .000 1.196



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 0 .511 .000 1.466

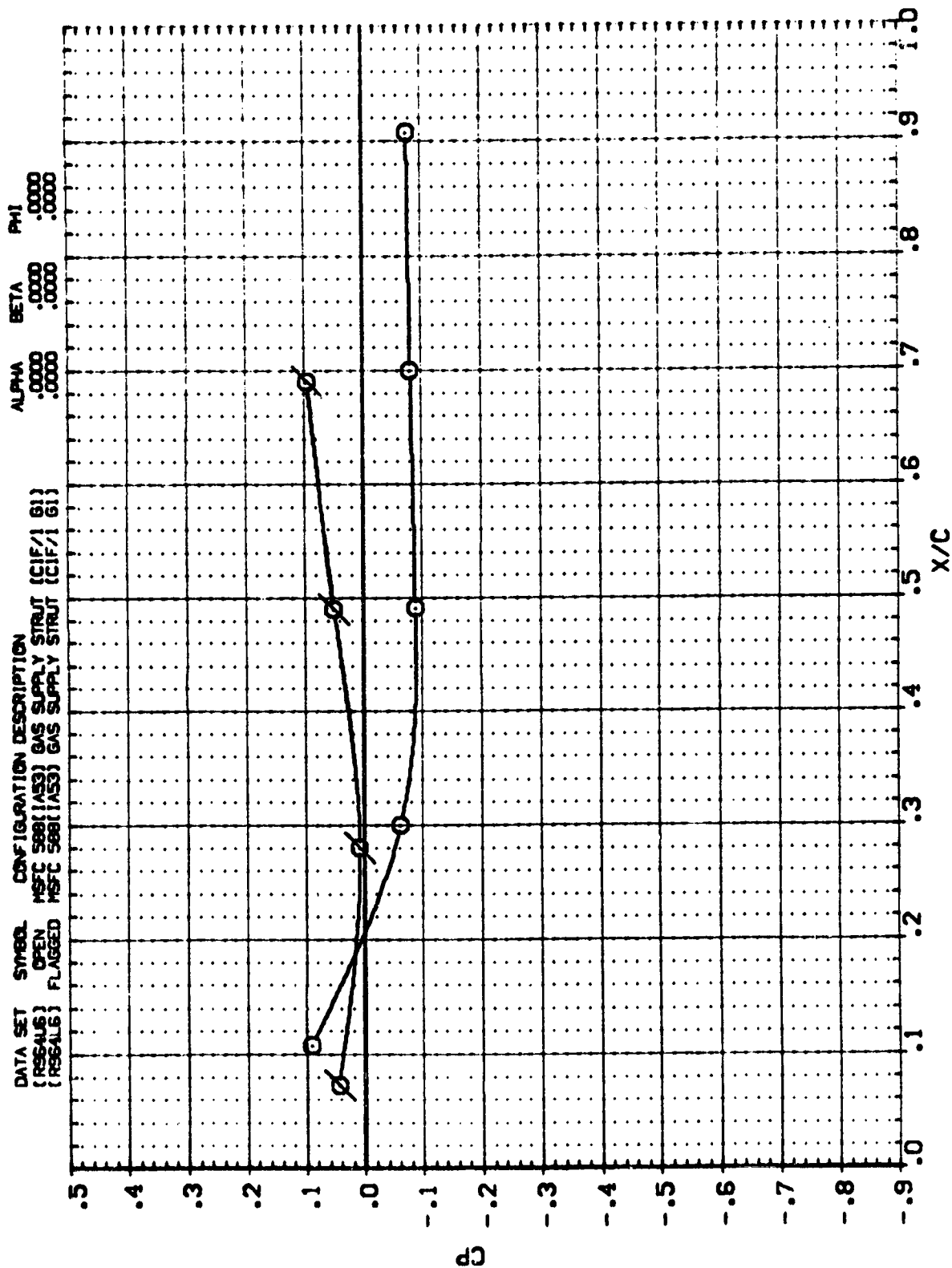


PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHOPCHISE

X/C	Y/C
0.05	-0.05
0.10	-0.02
0.25	0.25
0.30	0.20
0.45	0.05
0.50	0.00
0.65	-0.15
0.70	-0.20
0.90	-0.05

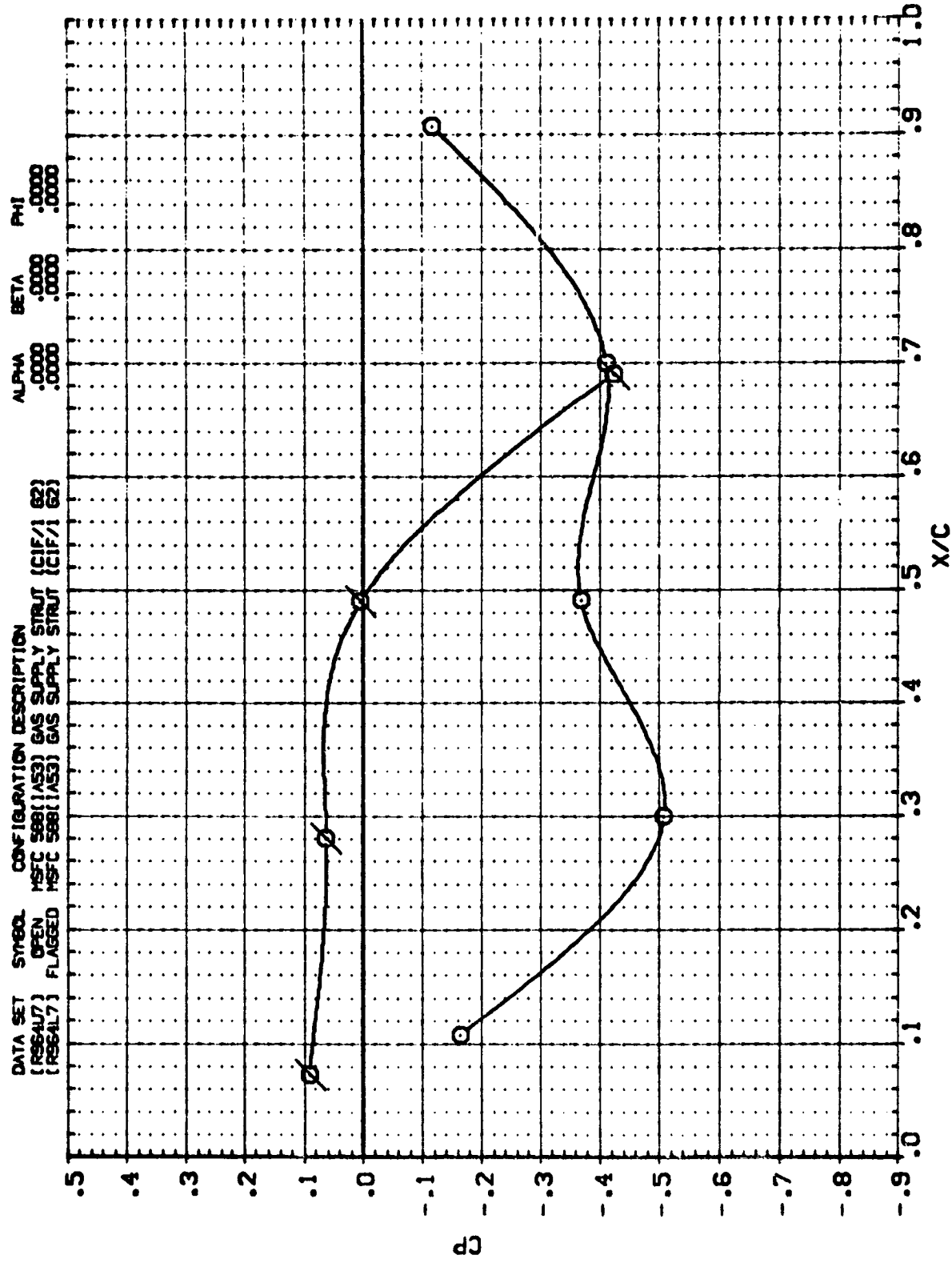
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/B ALPHA MACH
 O .511 .000 2.990



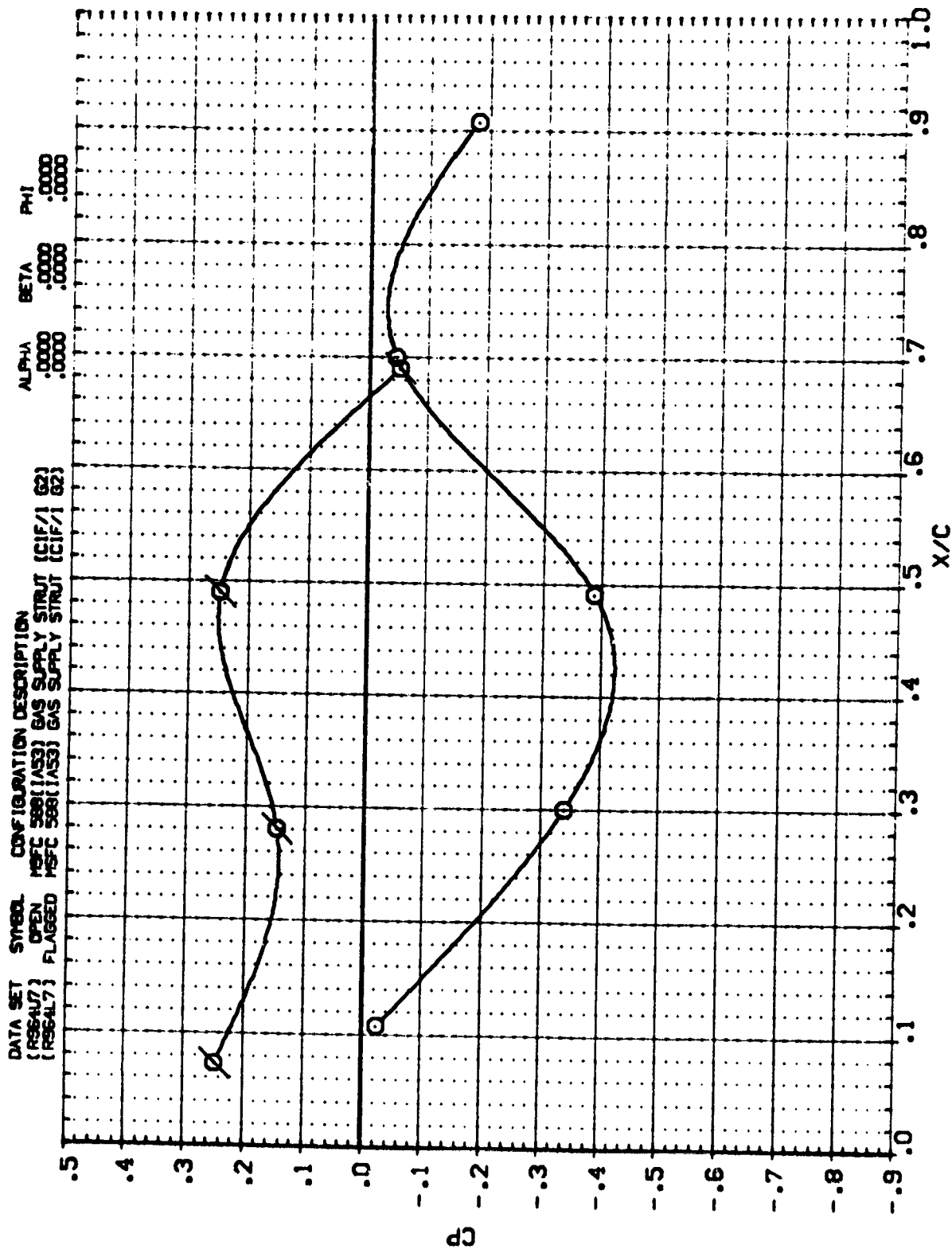
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 .896



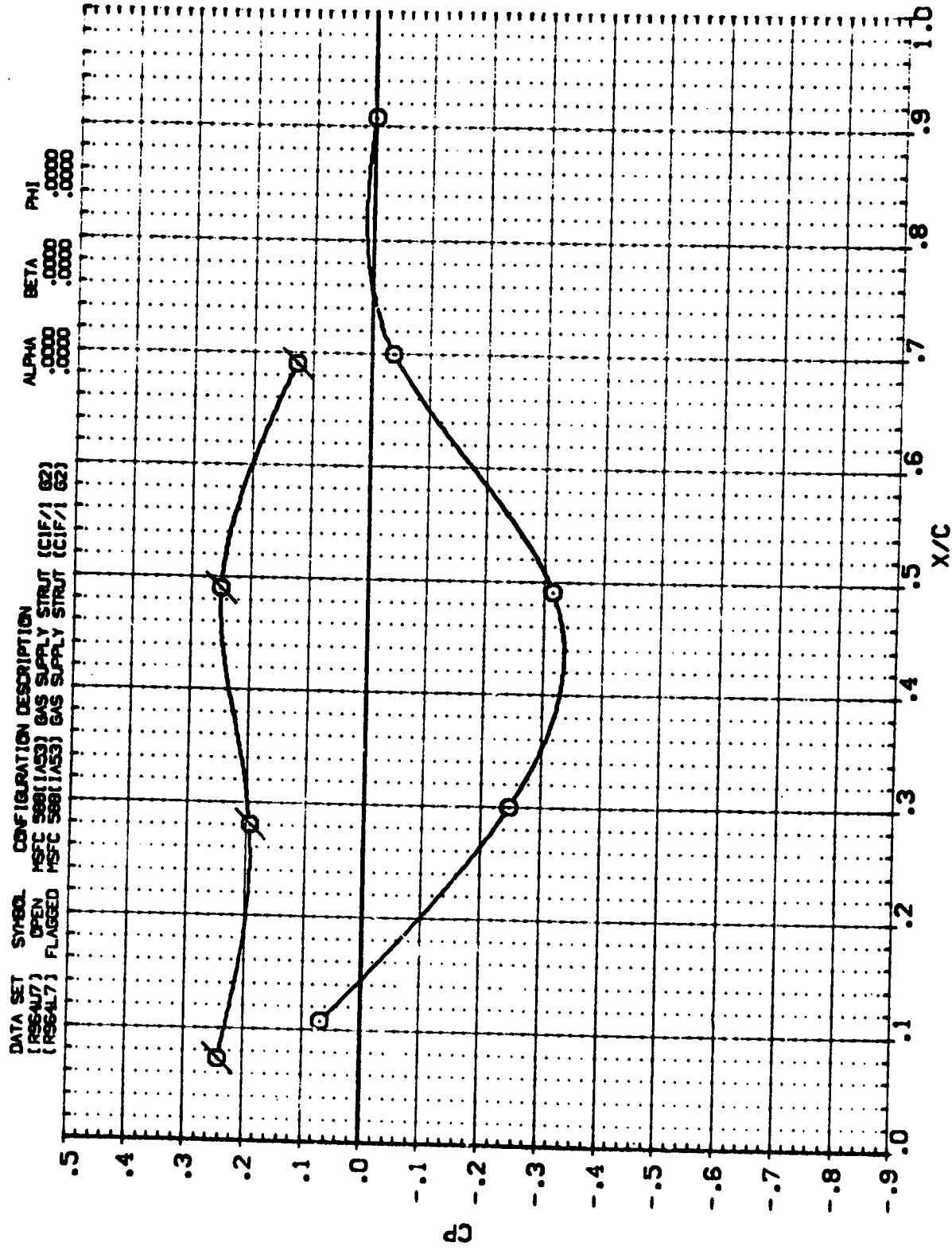
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.204



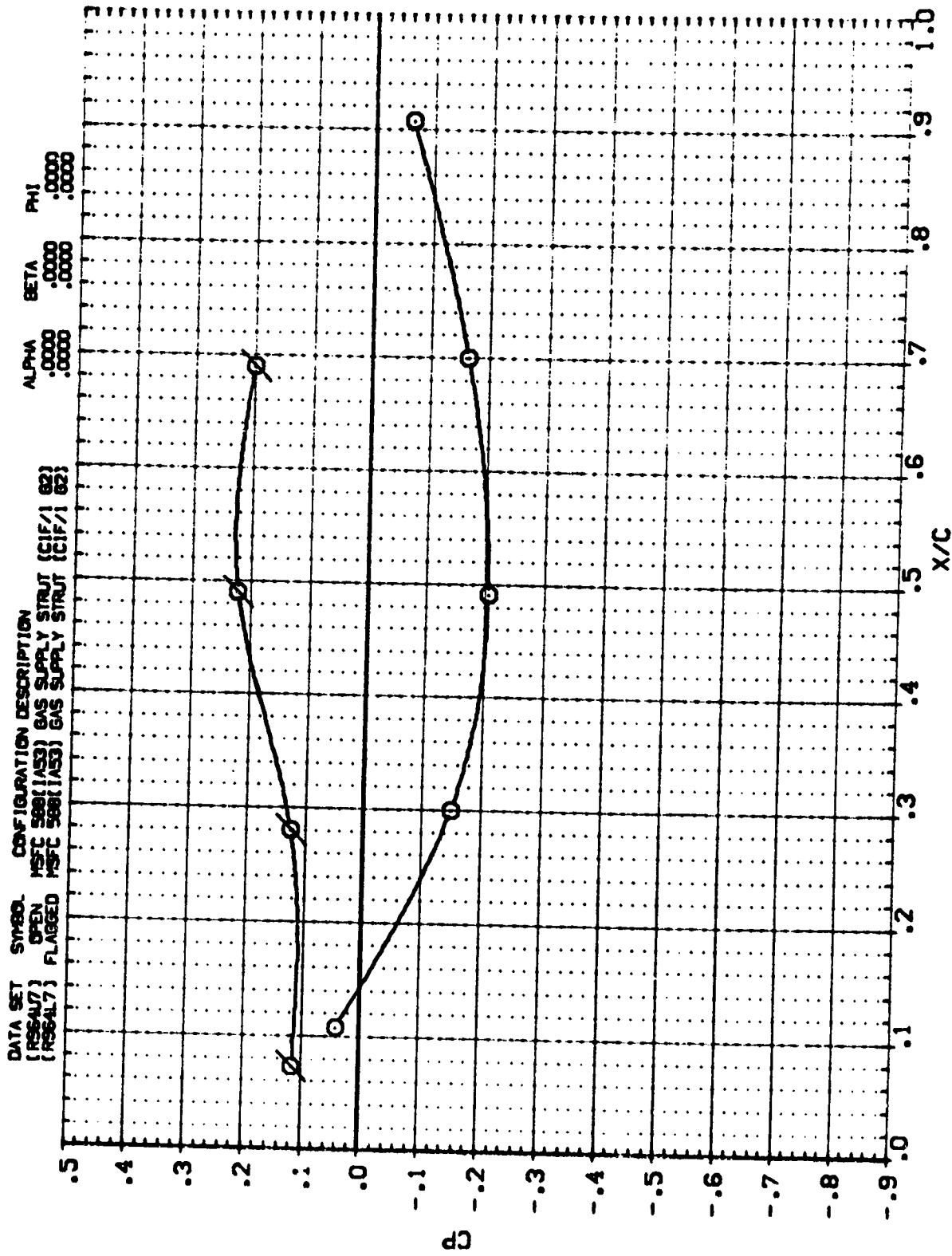
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.453



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

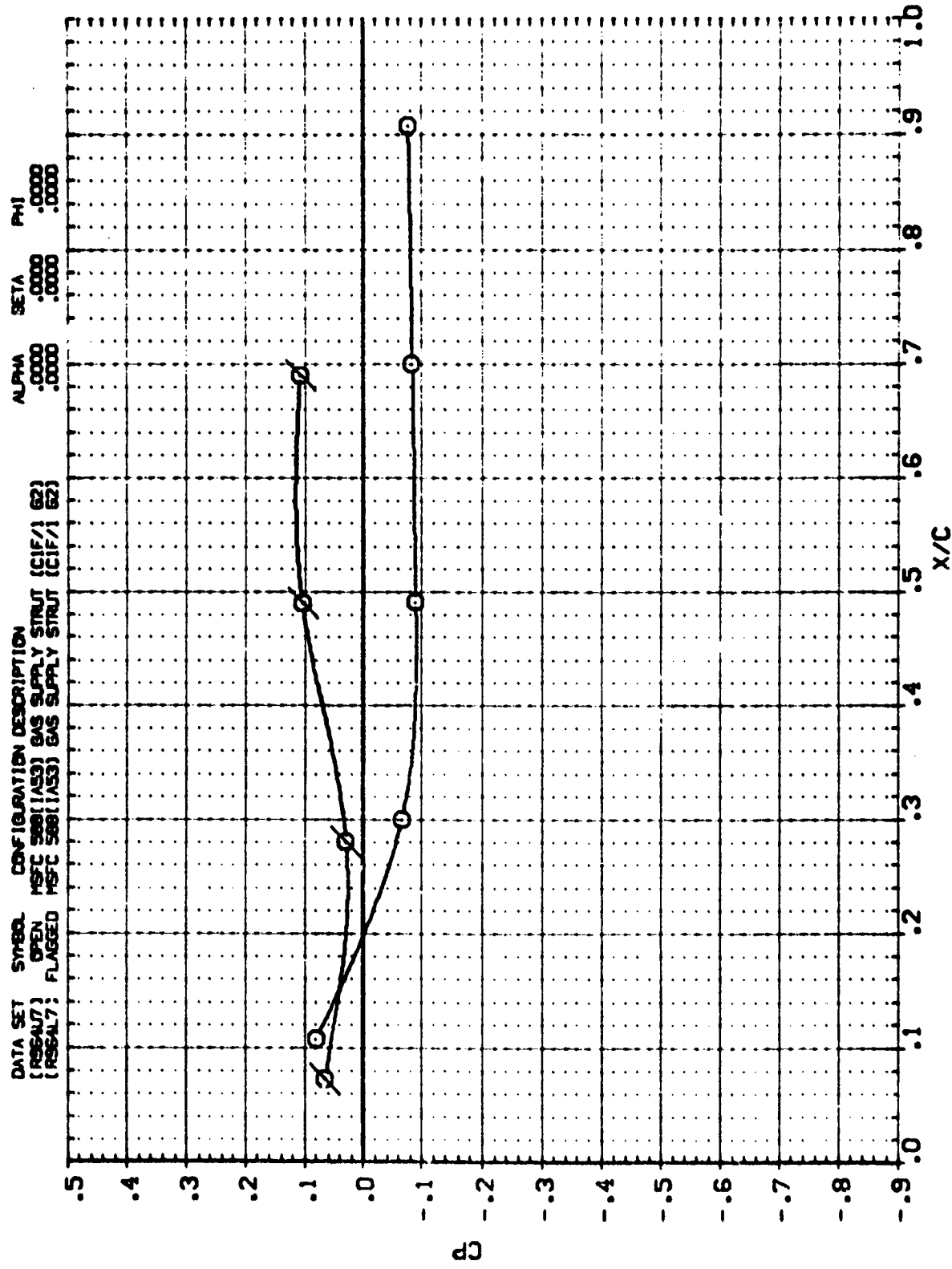
SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.558



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

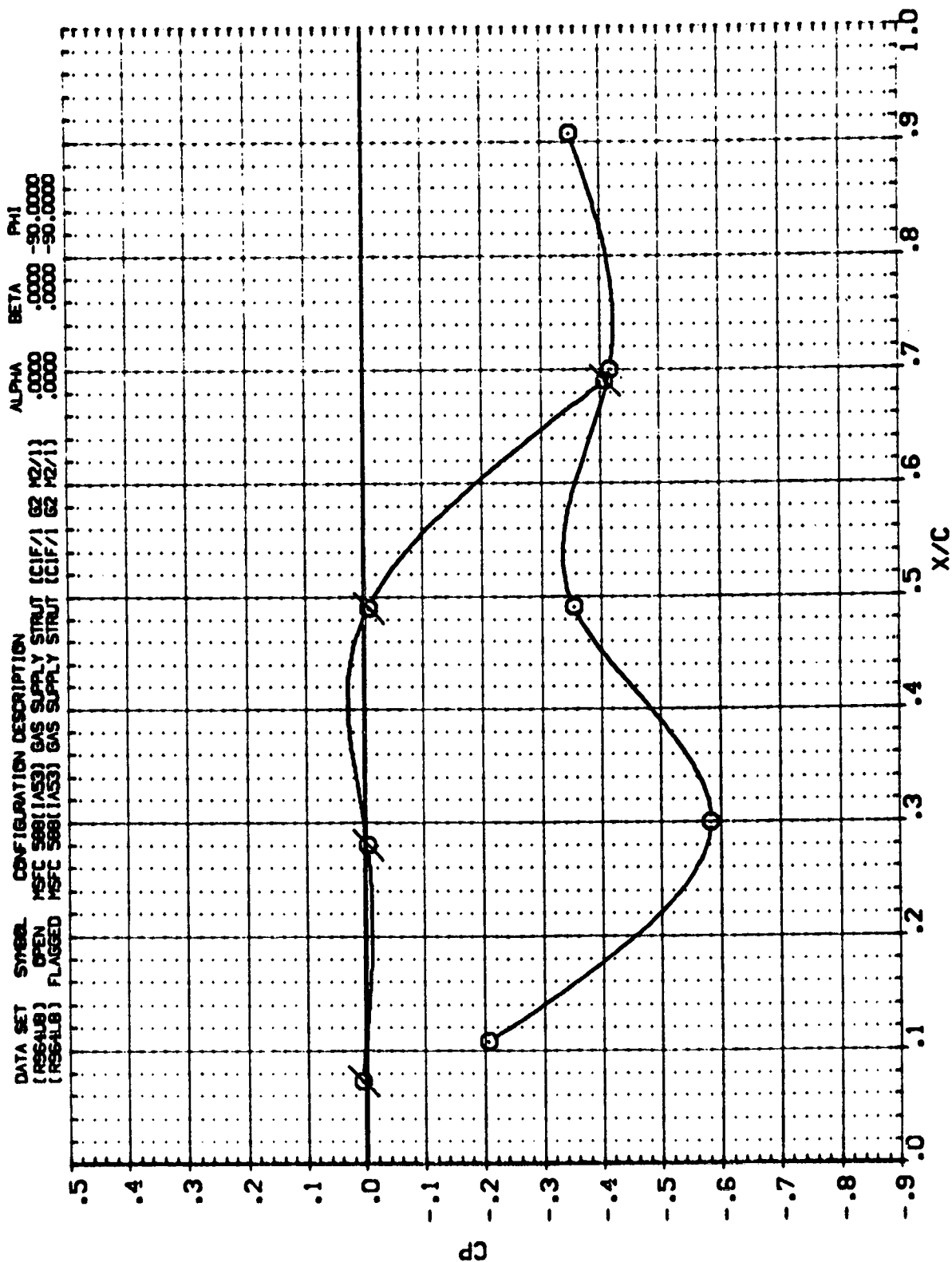


SYMBOL 21/8 ALPHA .000 MACH 2.960
 O



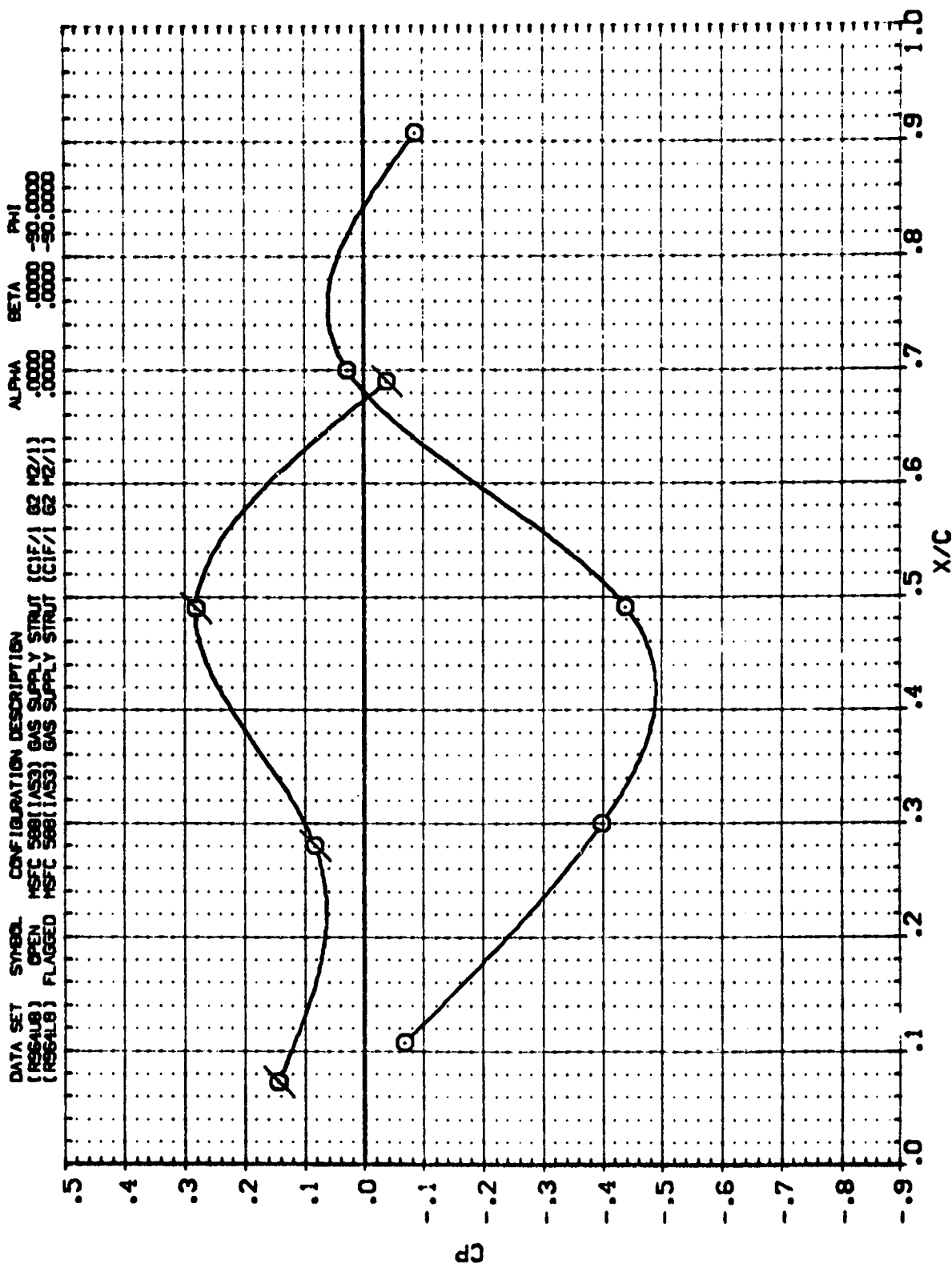
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 .504



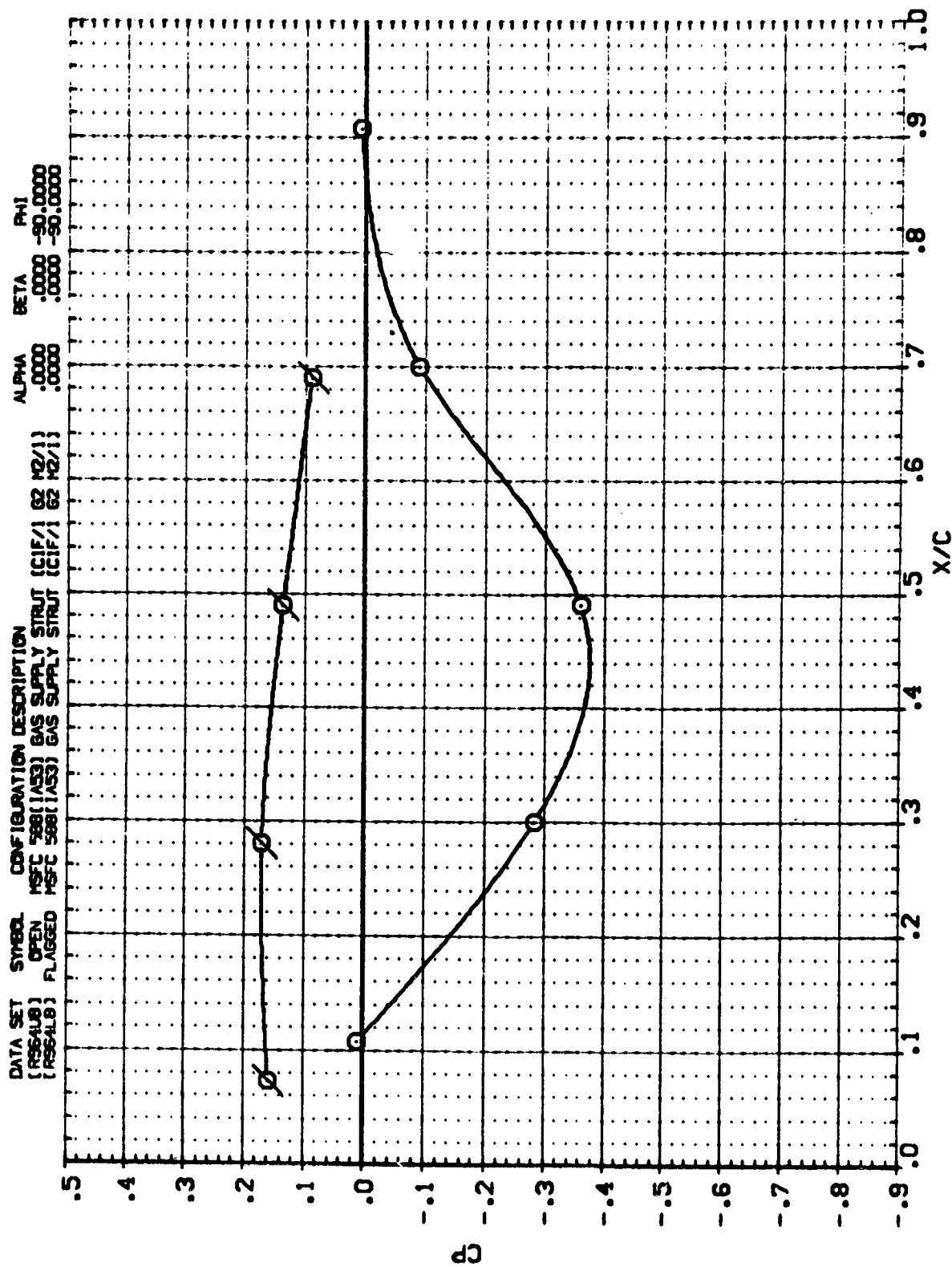
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 1.196
O



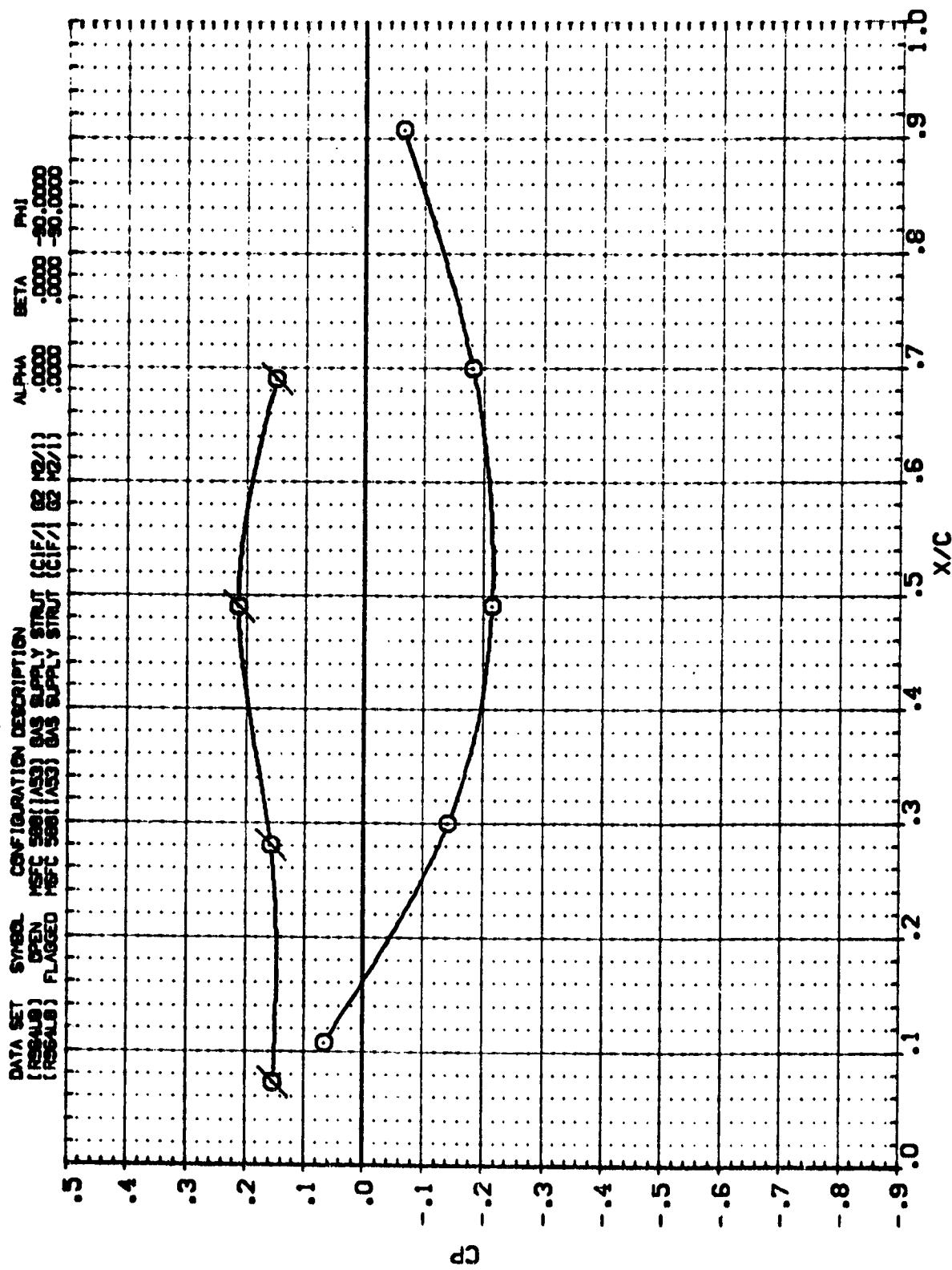
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
O .511 .000 1.453



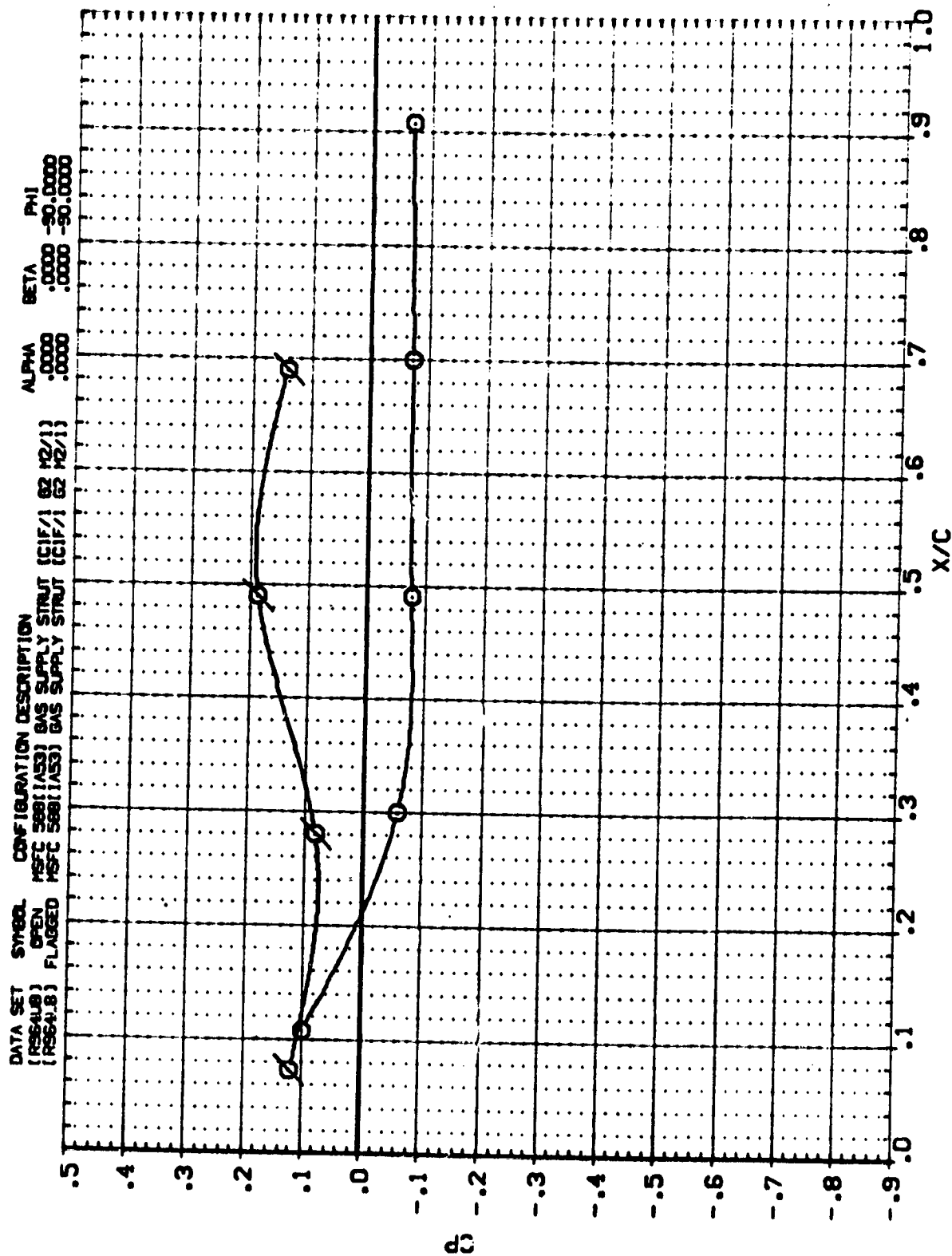
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 1.958
O



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

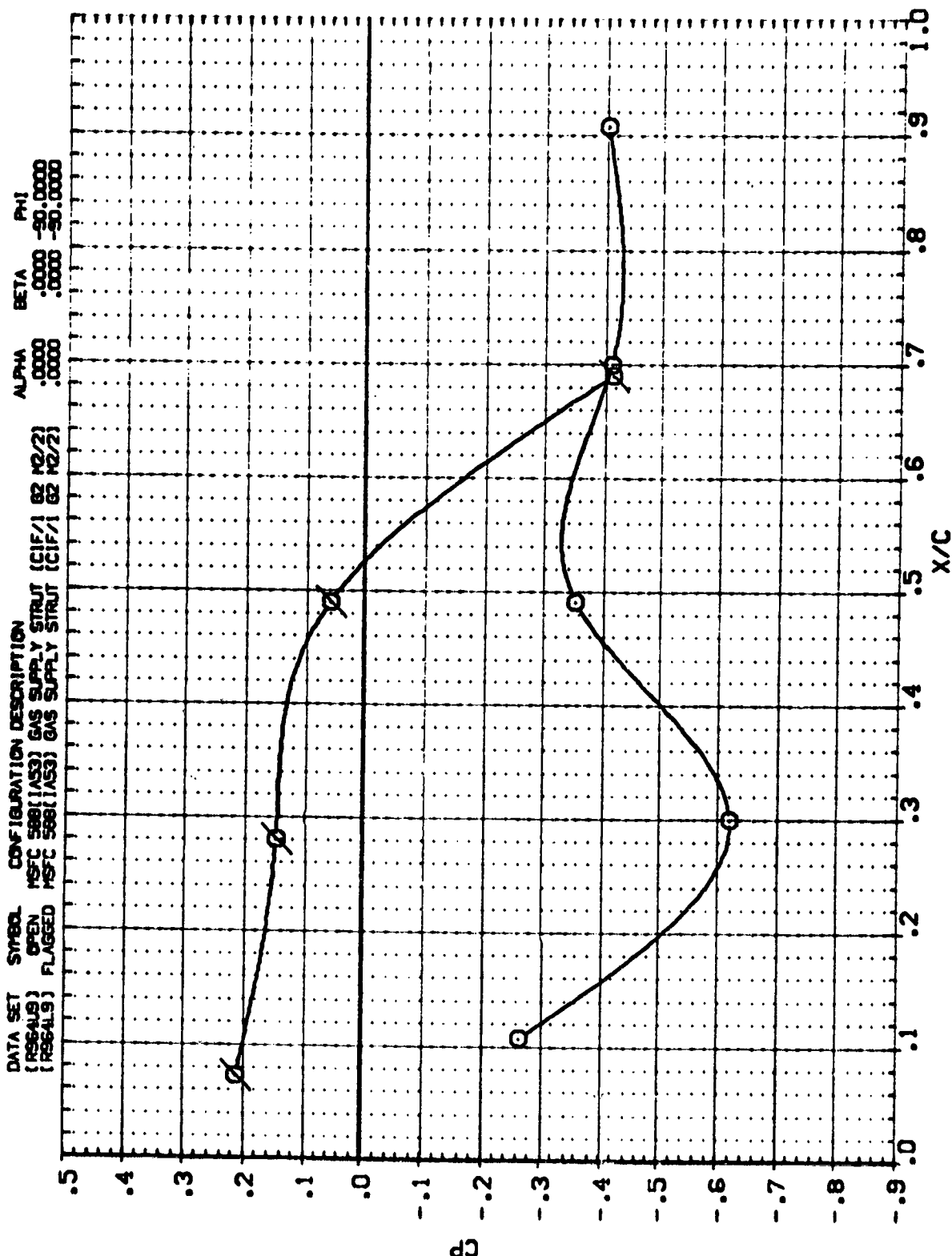
SYMBOL 21/8 ALPHA .000 MACH 2.980
O



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

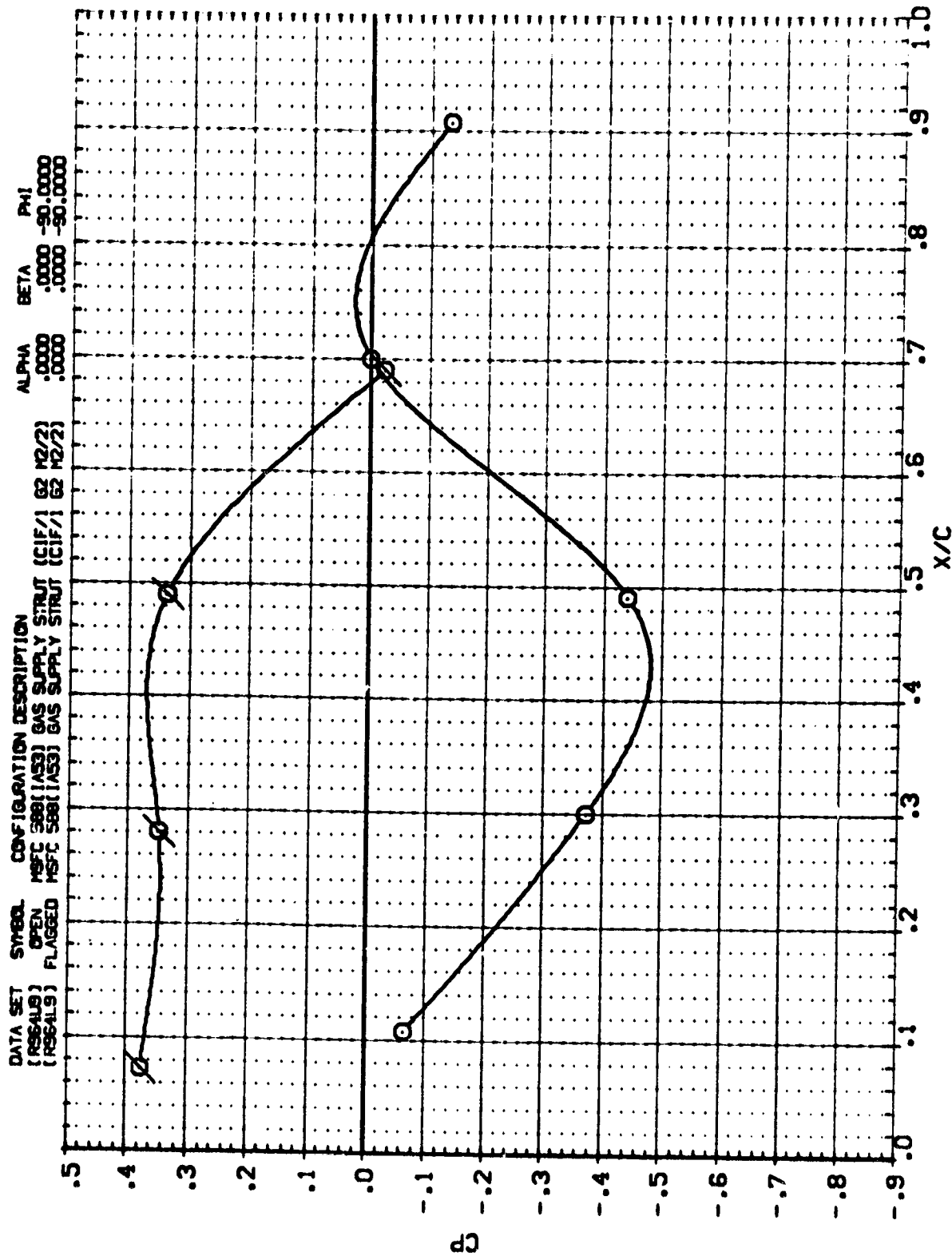


SYMBOL 21/B ALPHA MACH
 O .511 .000 .502



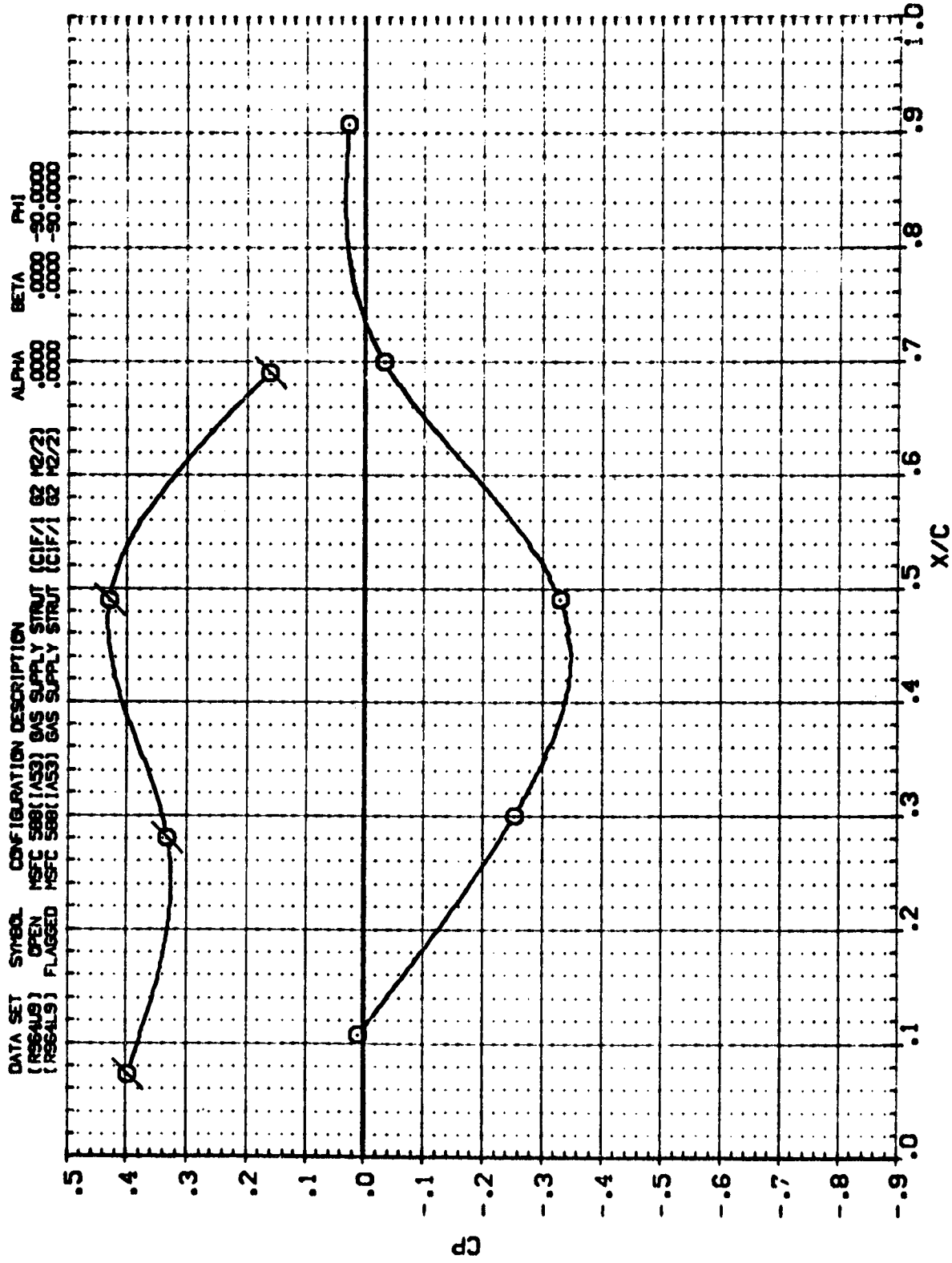
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 1.159



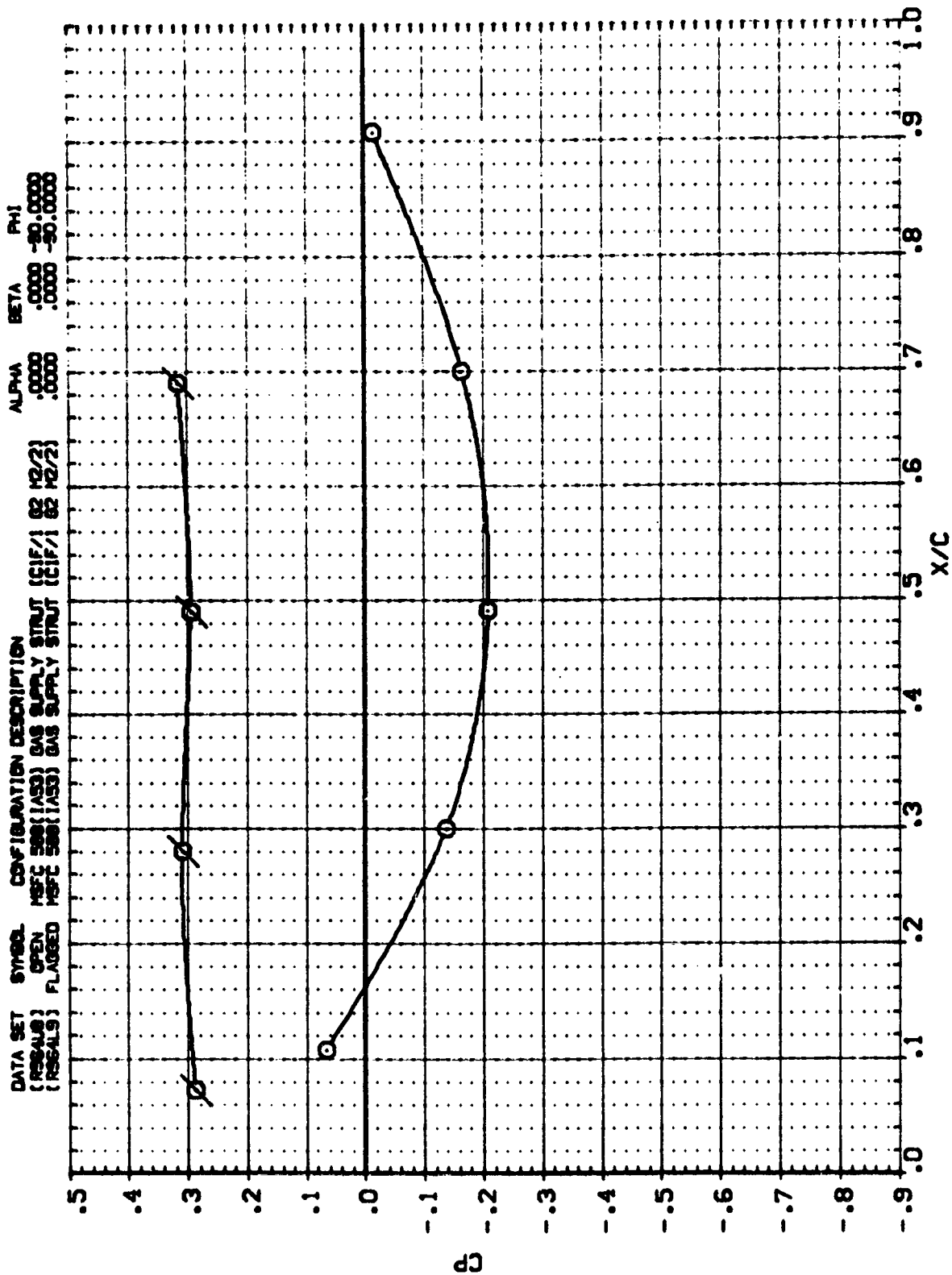
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 O .511 .000 1.452



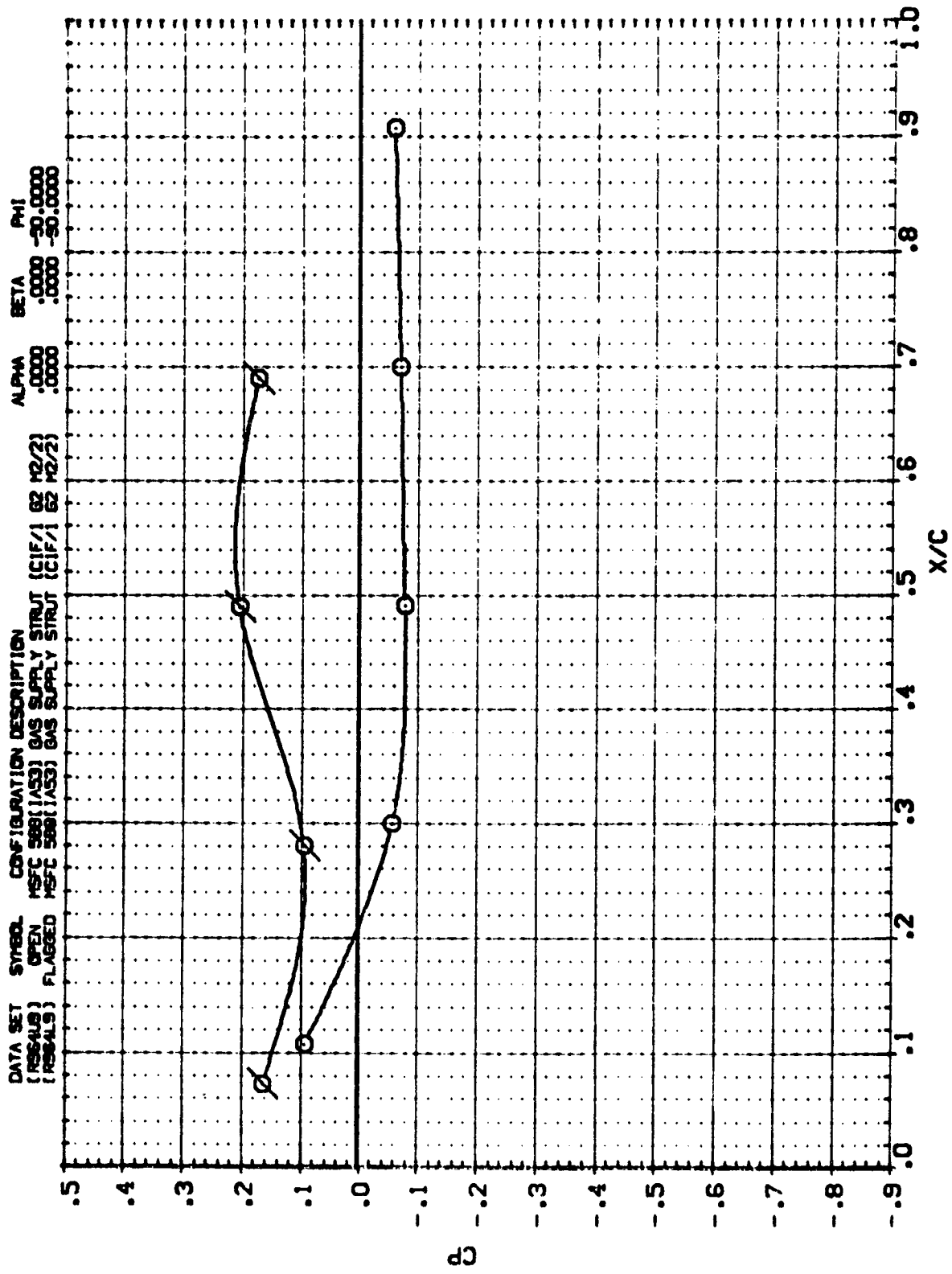
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA MACH
 0 .511 .000 1.954



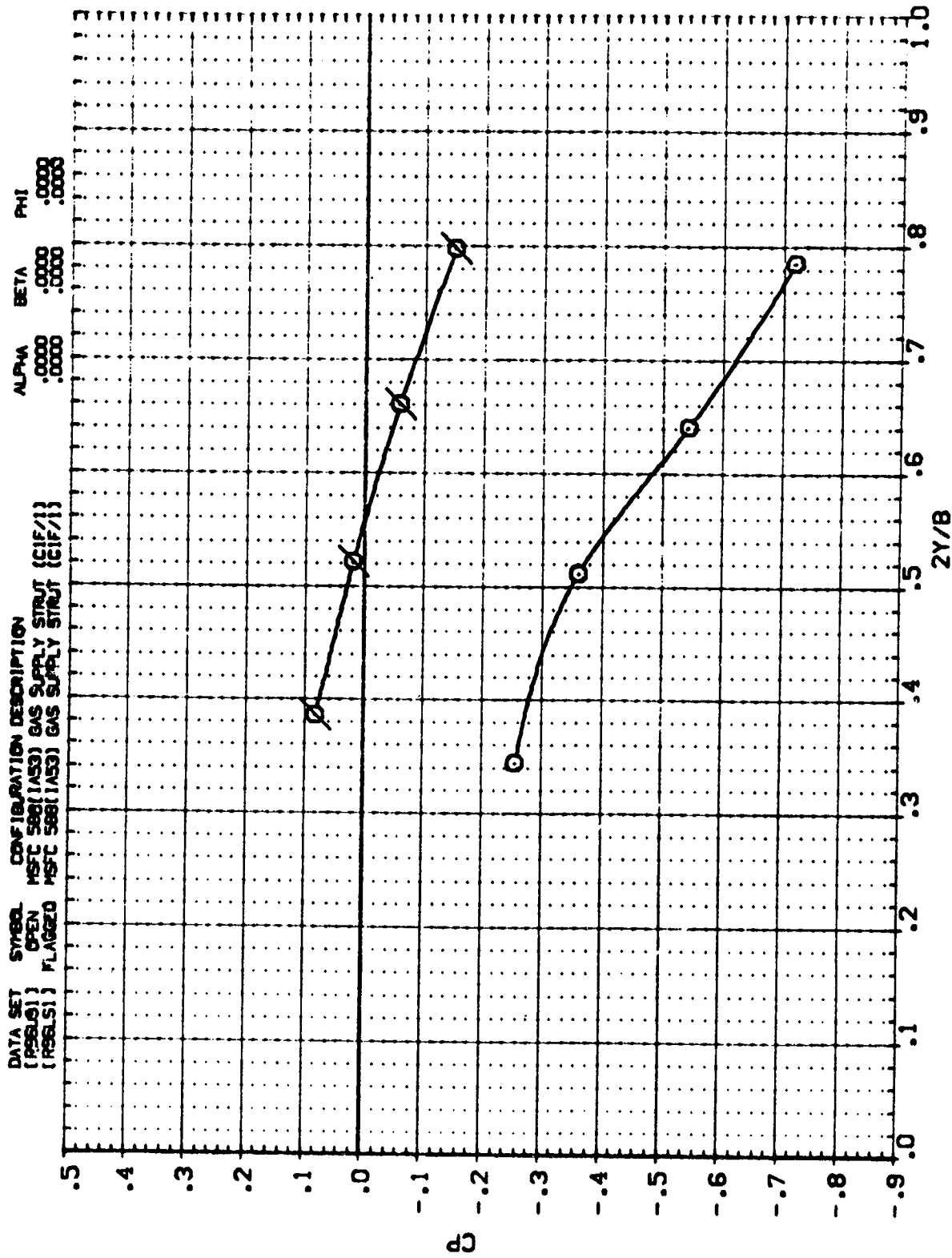
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL 21/8 ALPHA .000 MACH 2.980
O



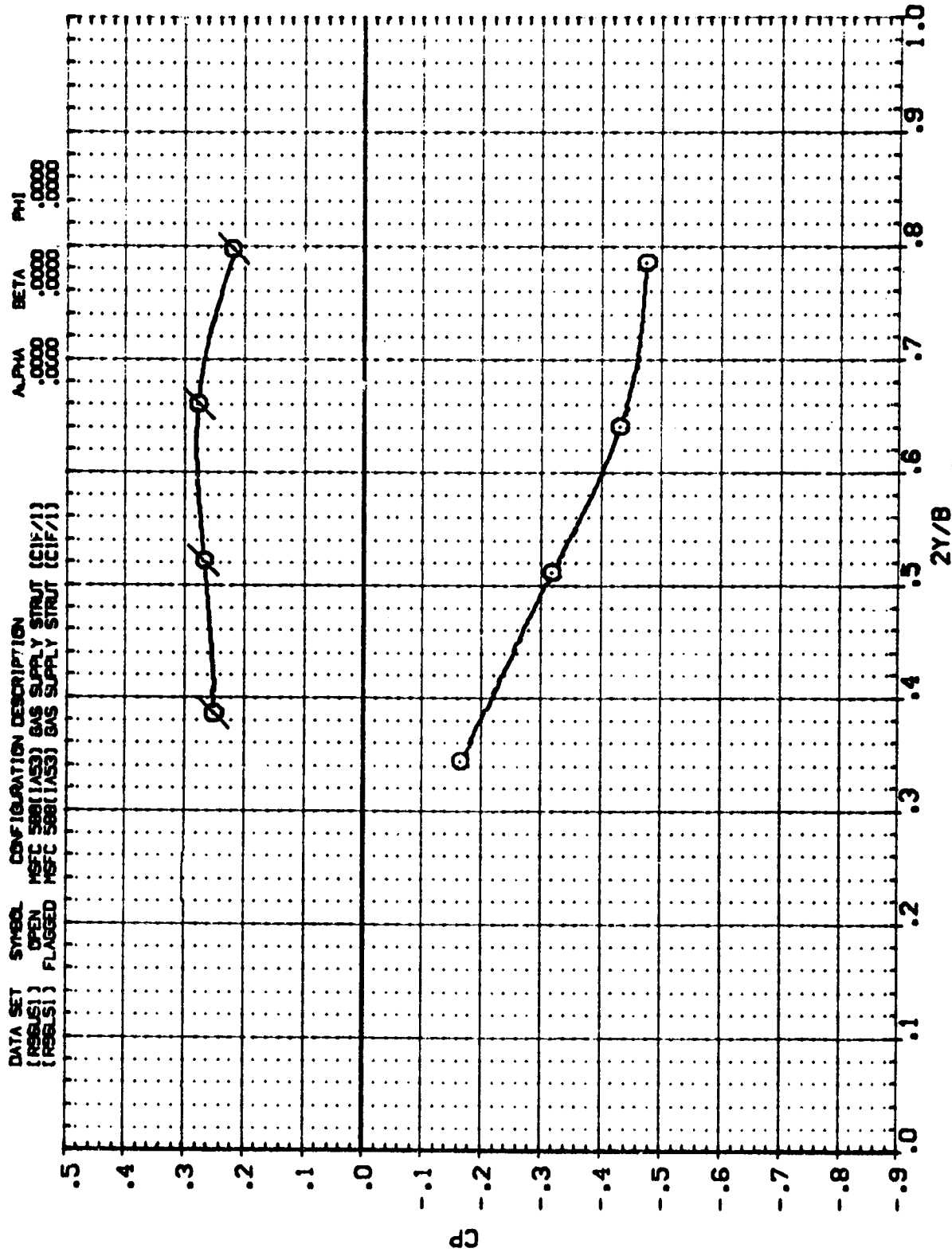
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - CHORDWISE

SYMBOL X/C ALPHA MACH
 O .490 .000 .903



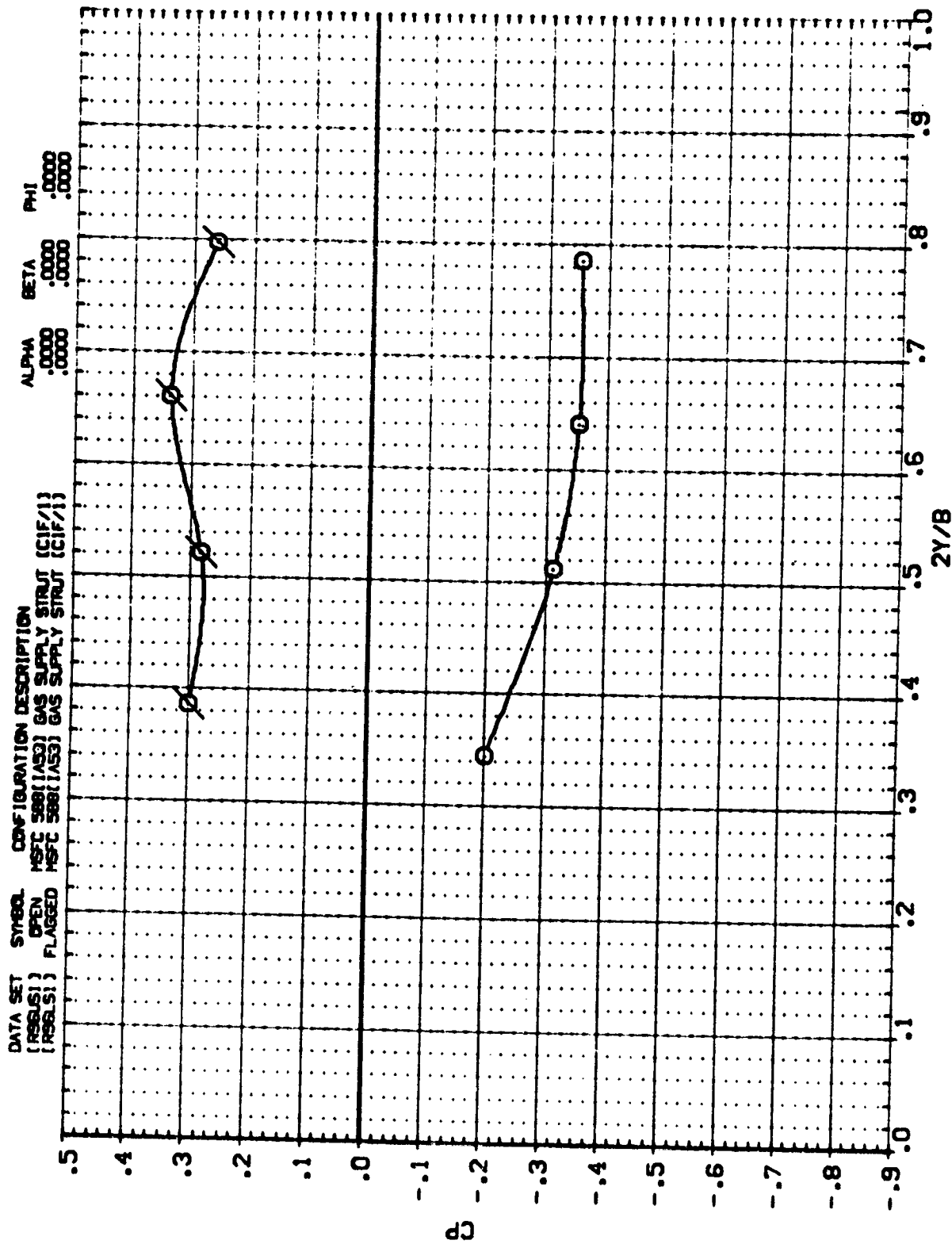
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/Z ALPHA MACH
 O .490 .000 1.197



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

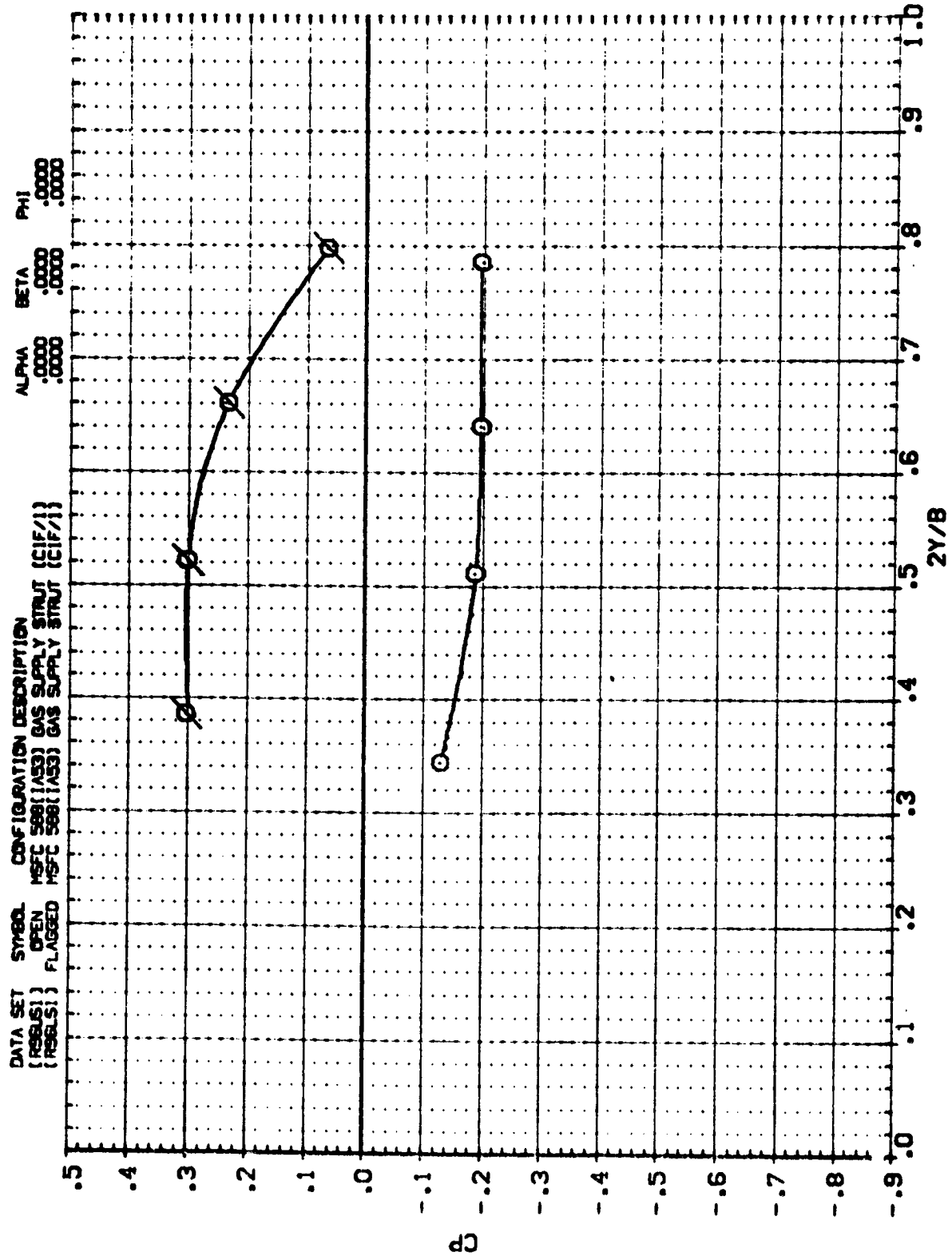
SYMBOL X/C ALPHA MACH
 O .450 .000 1.456



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

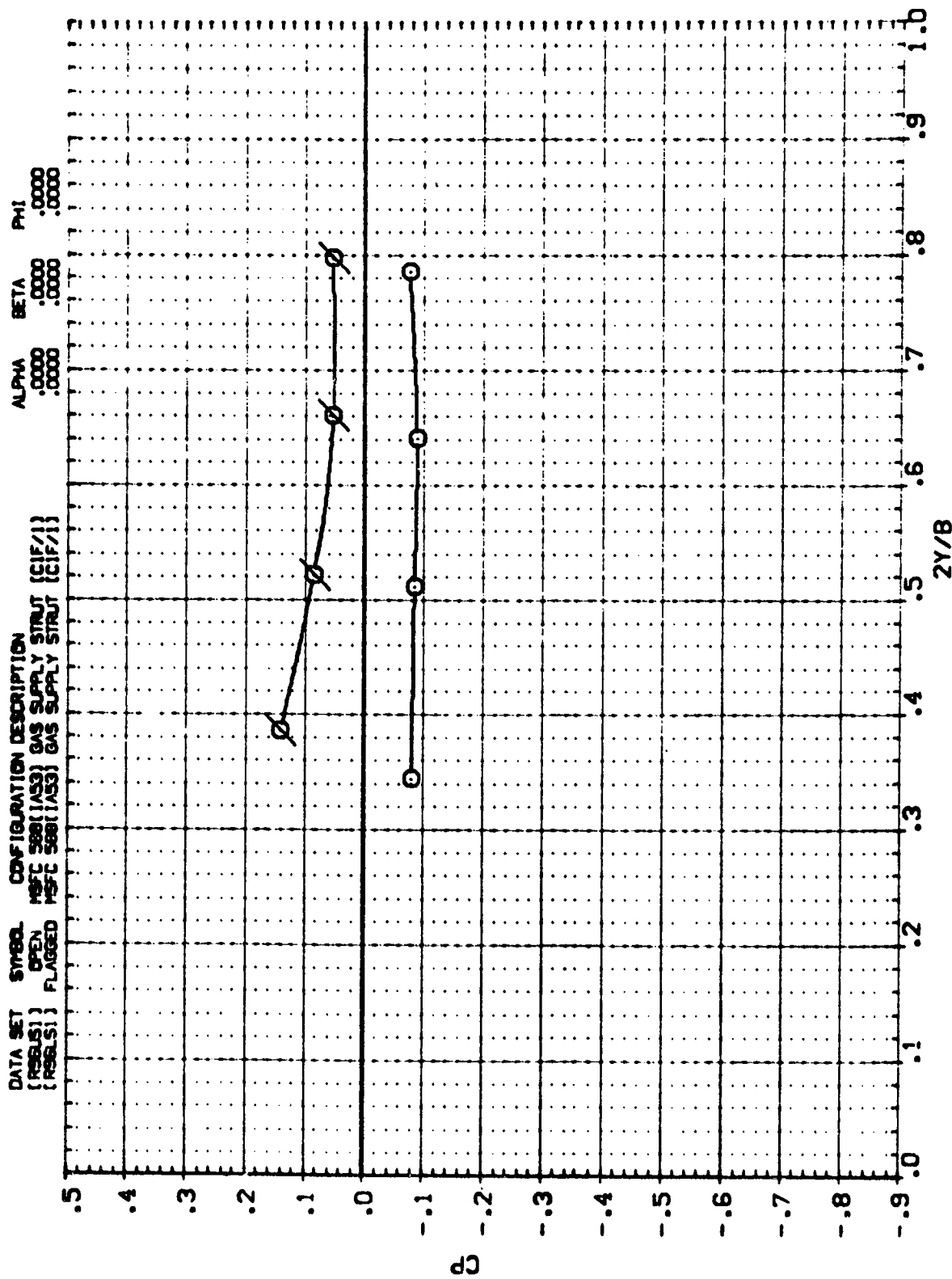


SYMBOL X/C ALPHA MACH
 □ .190 .000 1.058



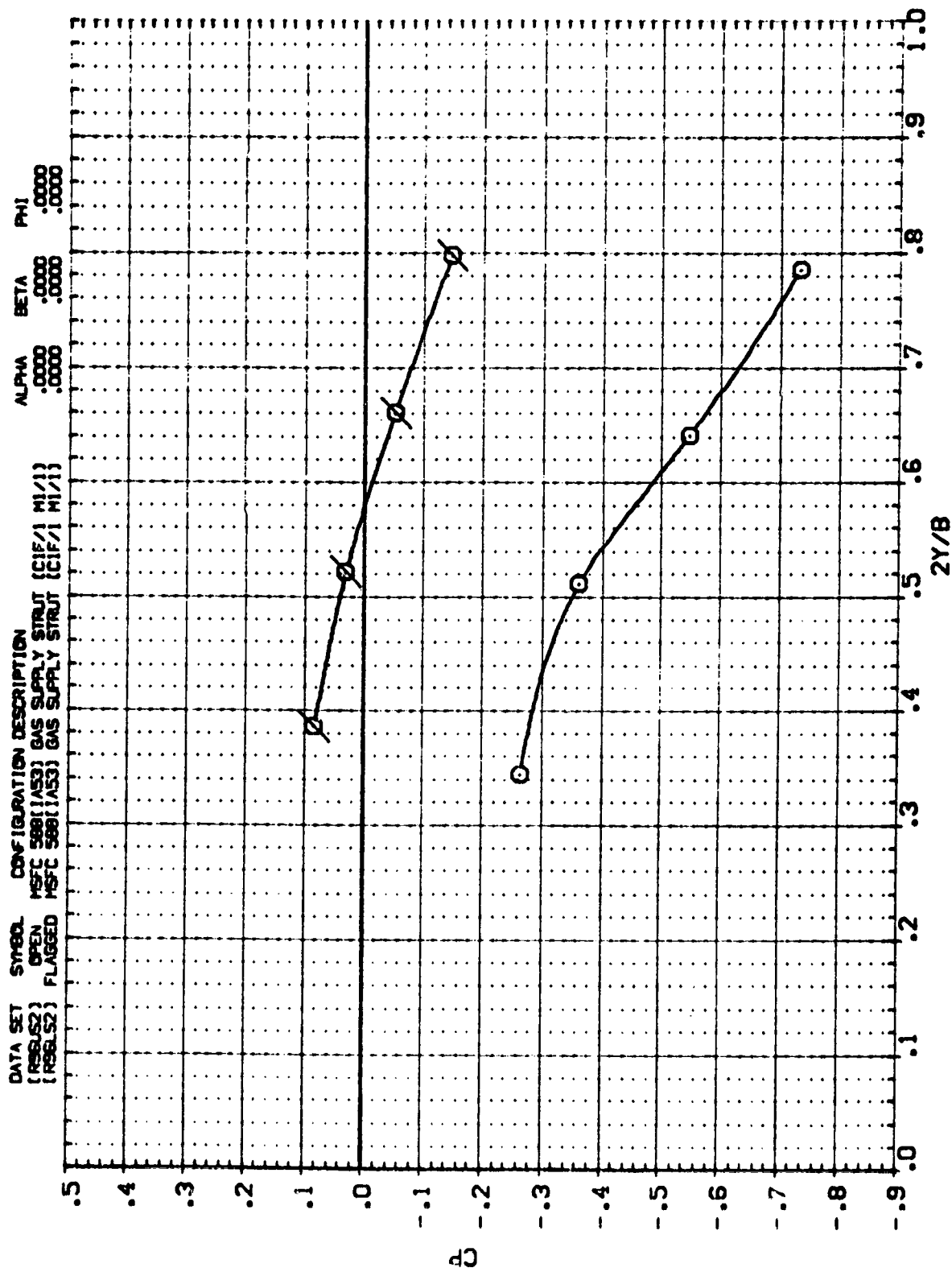
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 2.500



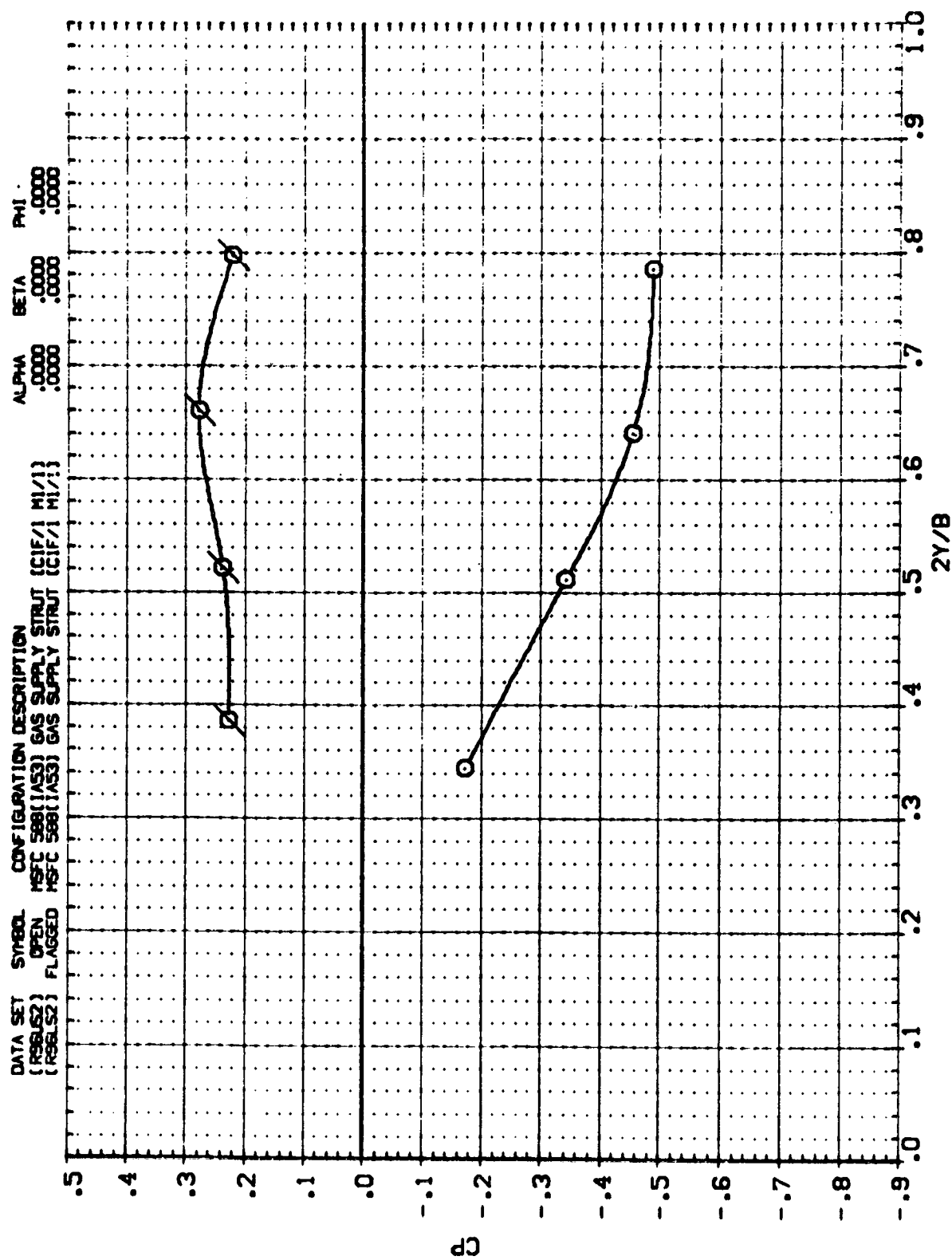
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 .505



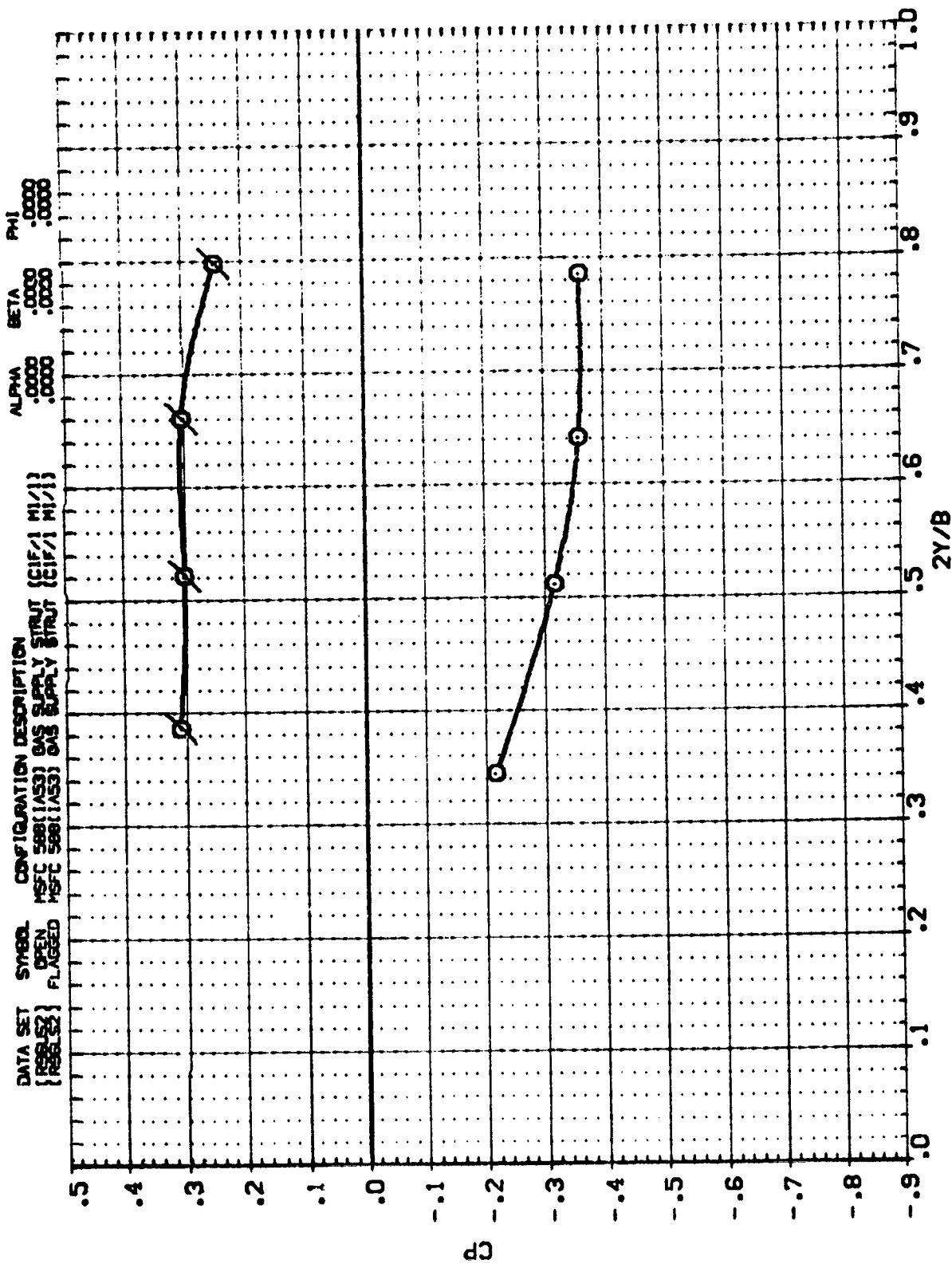
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL	X/C	ALPHA	MACH
0	.450	.000	1.201



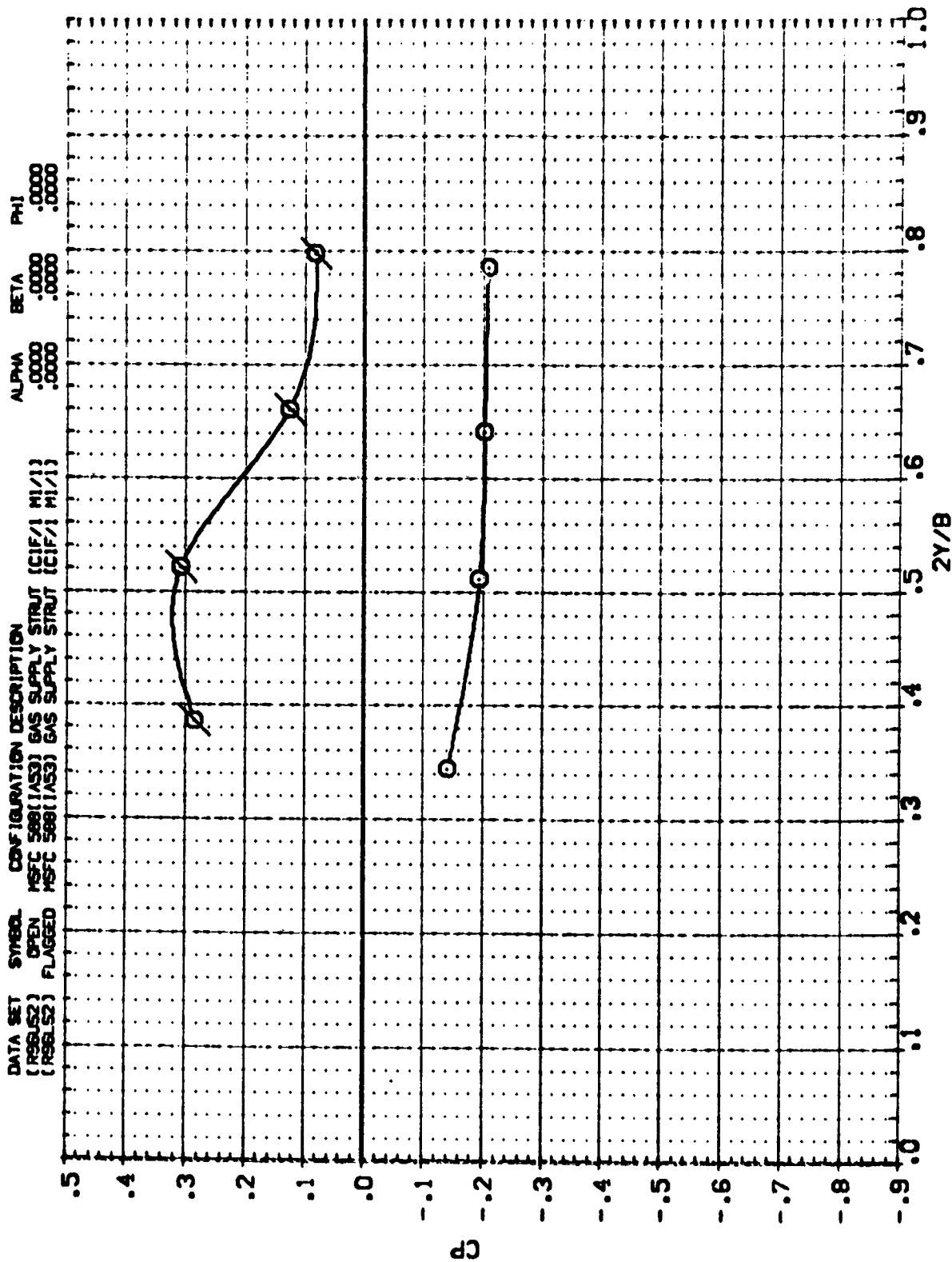
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN!

SYMBOL X/C ALPHA MACH
 O .490 .000 1.464



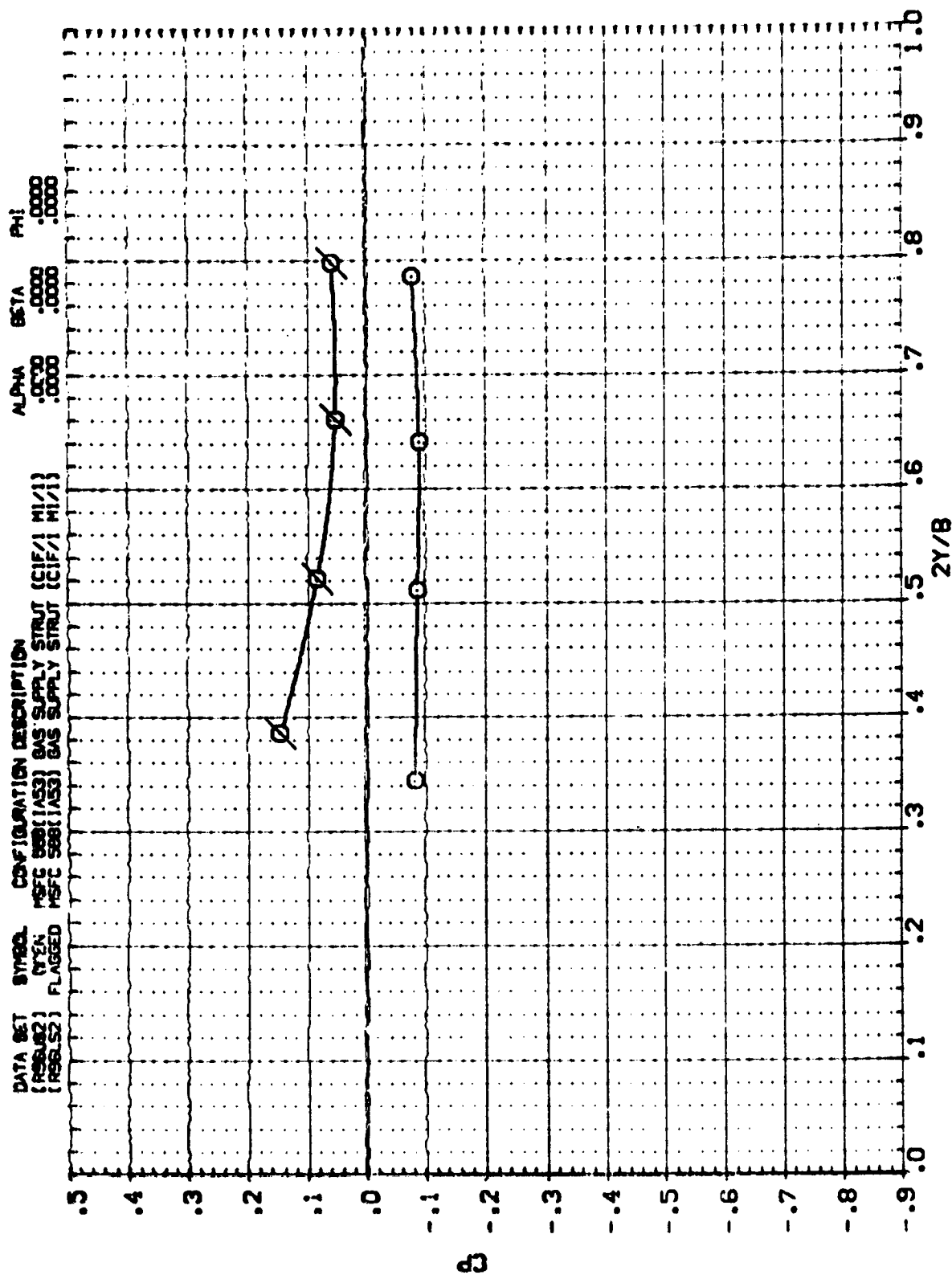
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .430 .000 1.961



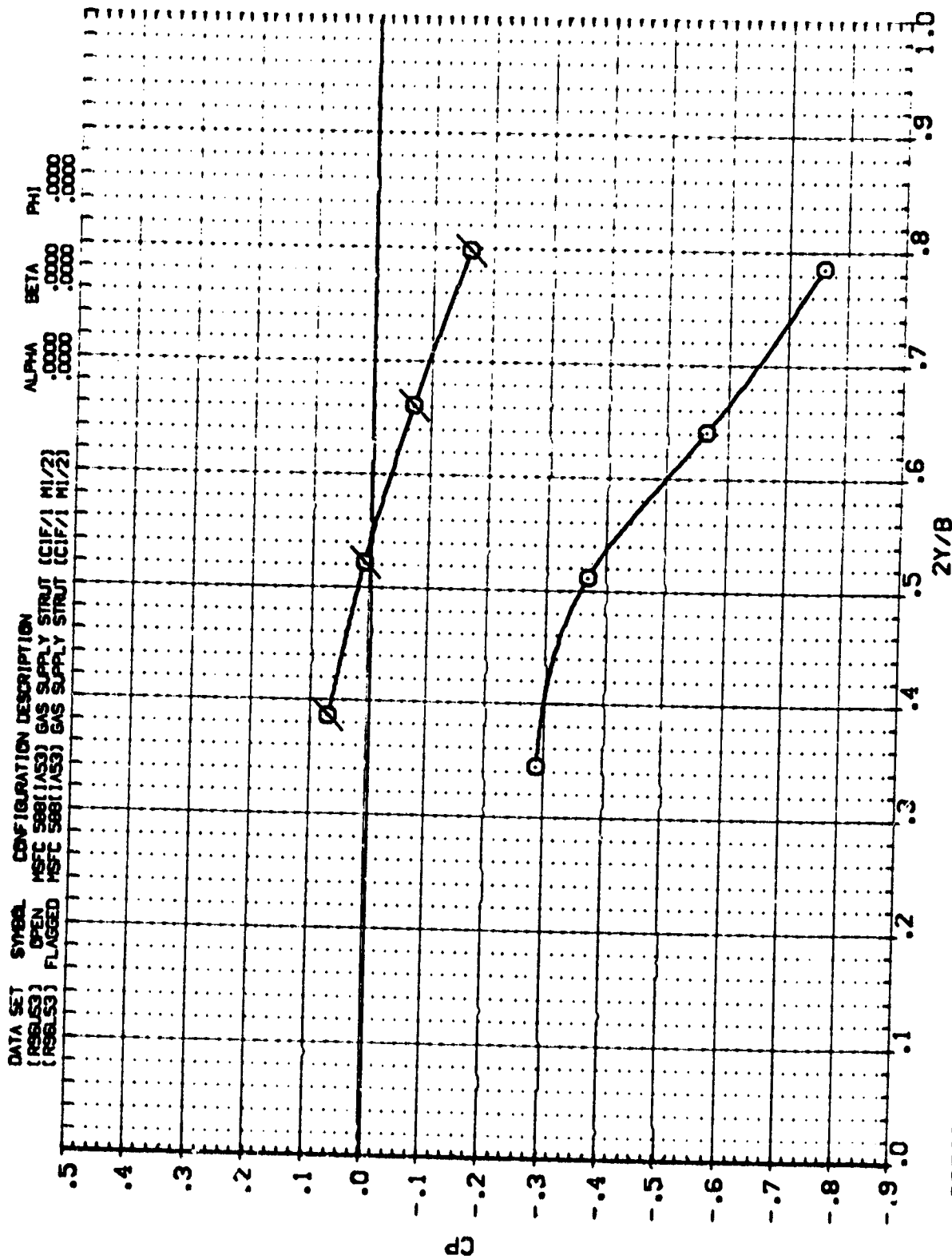
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 2.950



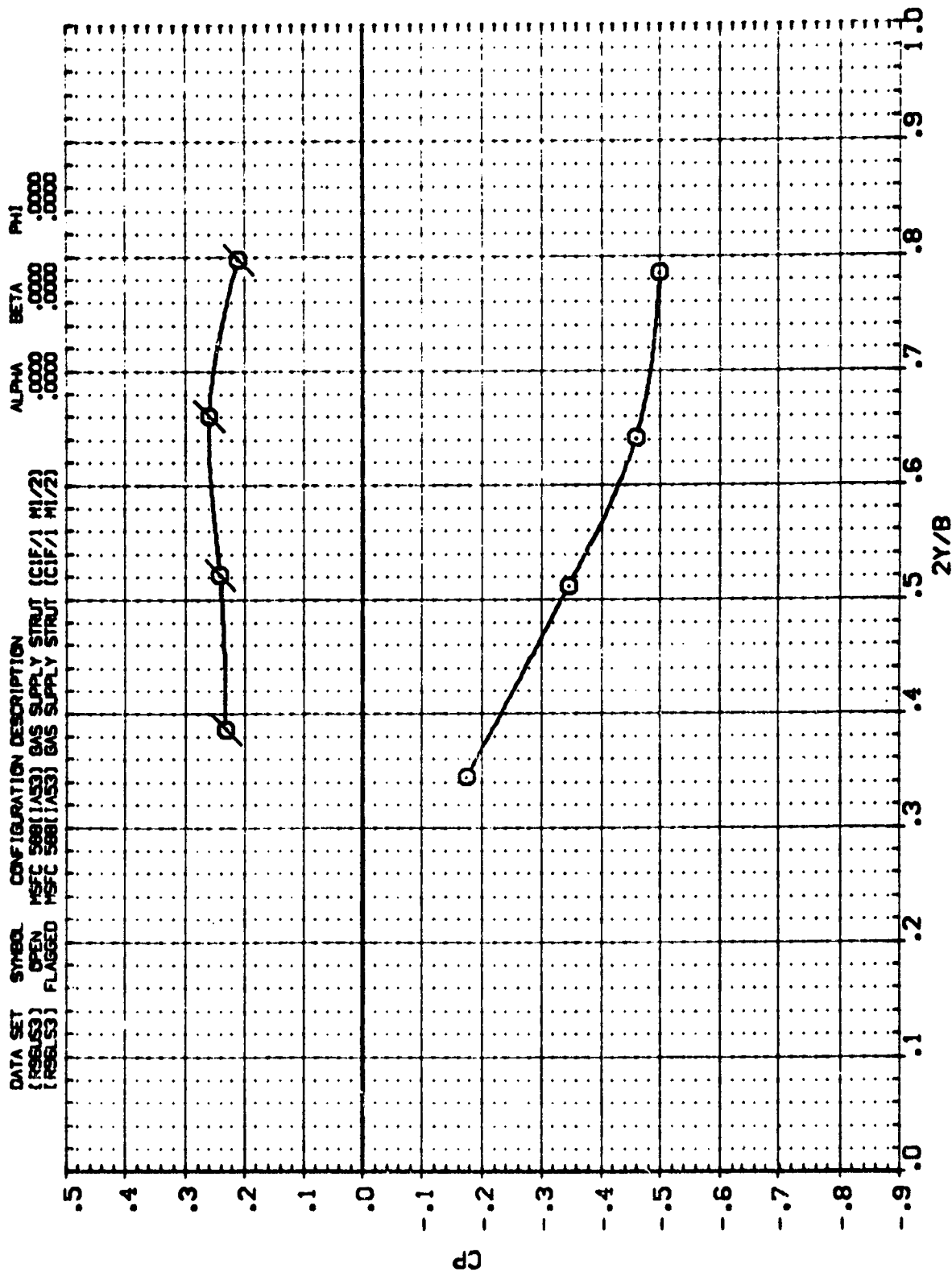
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 .901



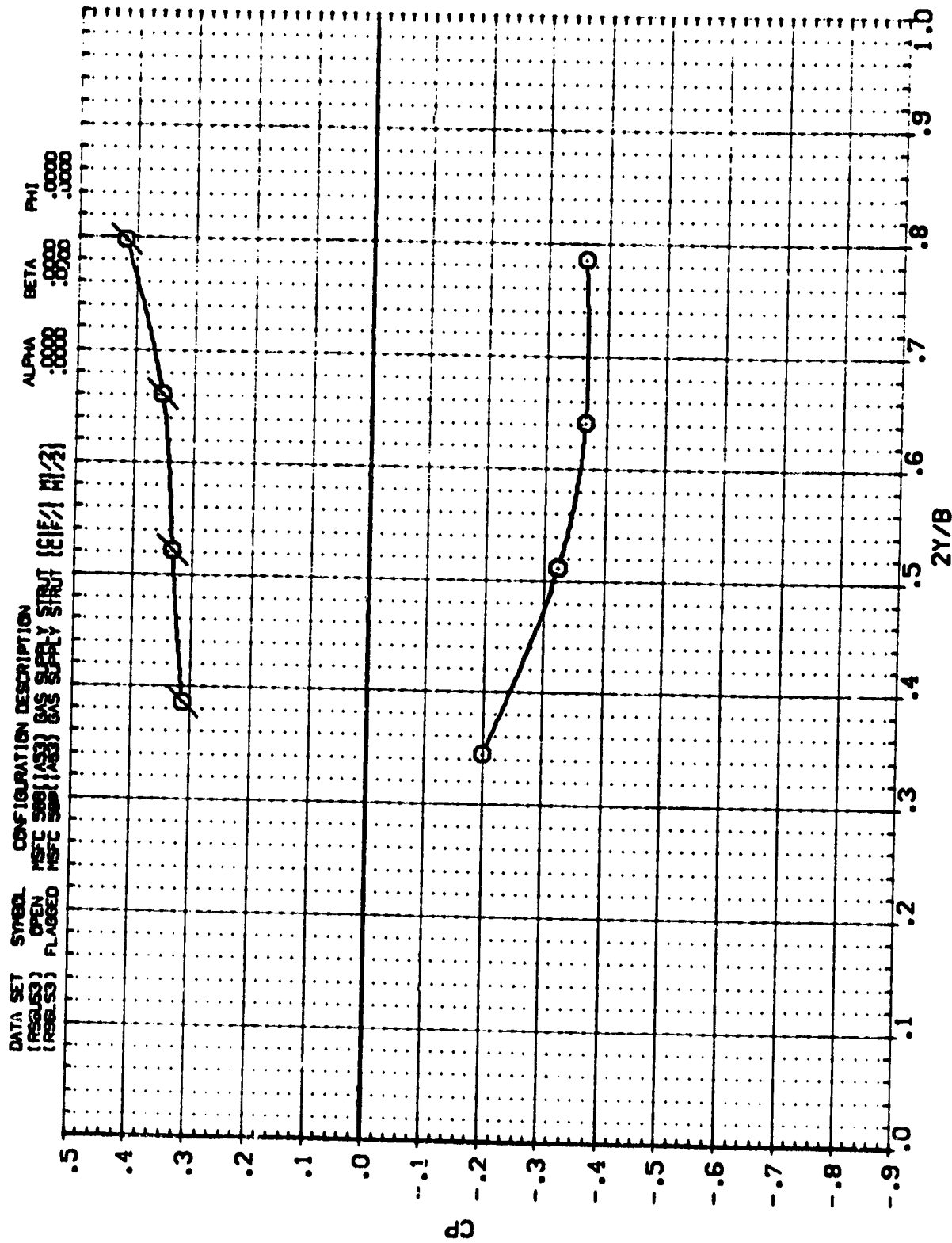
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.158



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.456

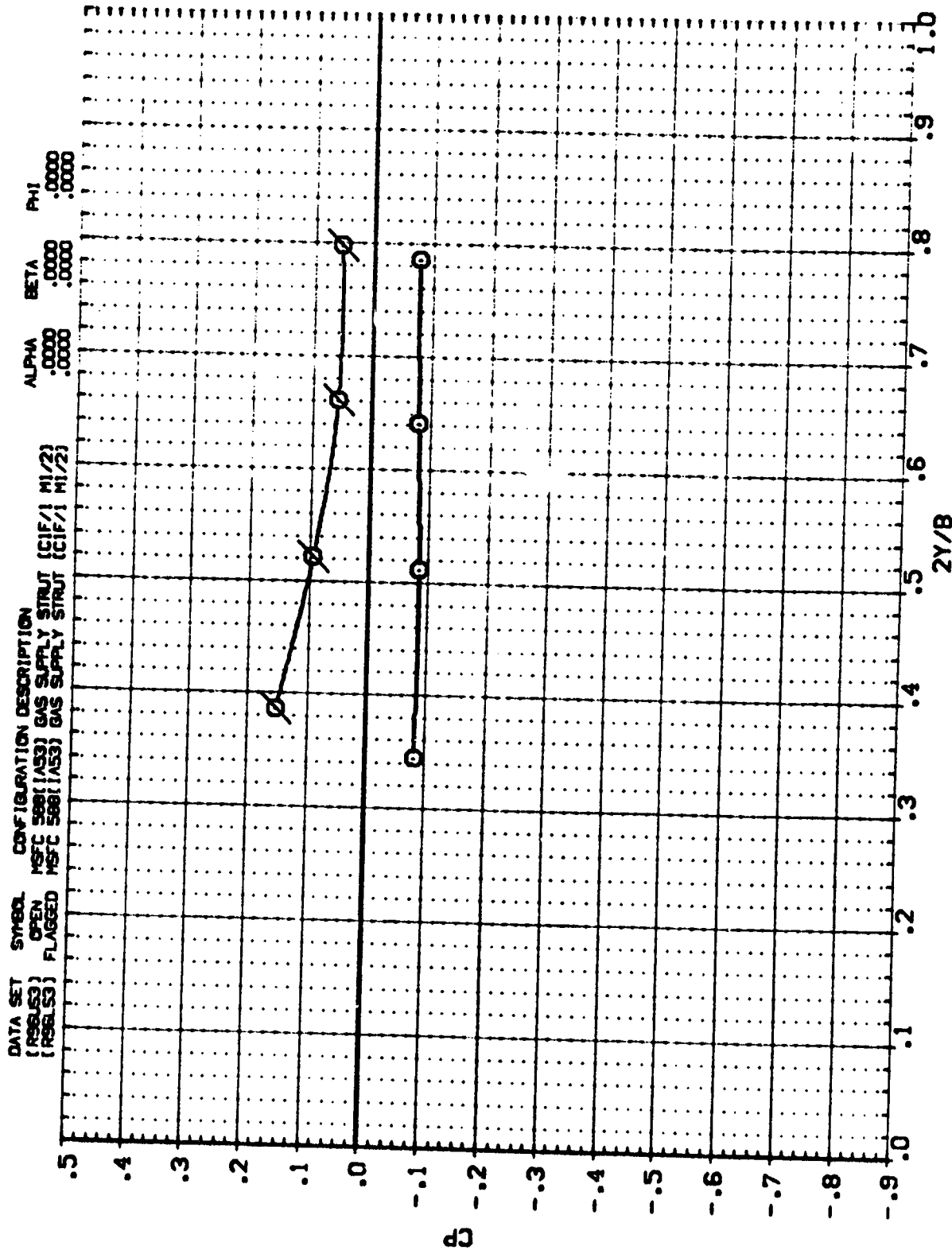


PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	2Y/B	C
(R5L53)	OPEN	MSFC 588(1A53) GAS SUPPLY STRUT	0.3	-0.15
(R5L53)	OPEN	MSFC 588(1A53) GAS SUPPLY STRUT	0.4	-0.2
(R5L53)	FLAGGED	MSFC 588(1A53) GAS SUPPLY STRUT	0.4	-0.3
(R5L53)	FLAGGED	MSFC 588(1A53) GAS SUPPLY STRUT	0.5	-0.25
(R5L53)	FLAGGED	MSFC 588(1A53) GAS SUPPLY STRUT	0.6	-0.2
(R5L53)	FLAGGED	MSFC 588(1A53) GAS SUPPLY STRUT	0.7	-0.15
(R5L53)	FLAGGED	MSFC 588(1A53) GAS SUPPLY STRUT	0.8	-0.1

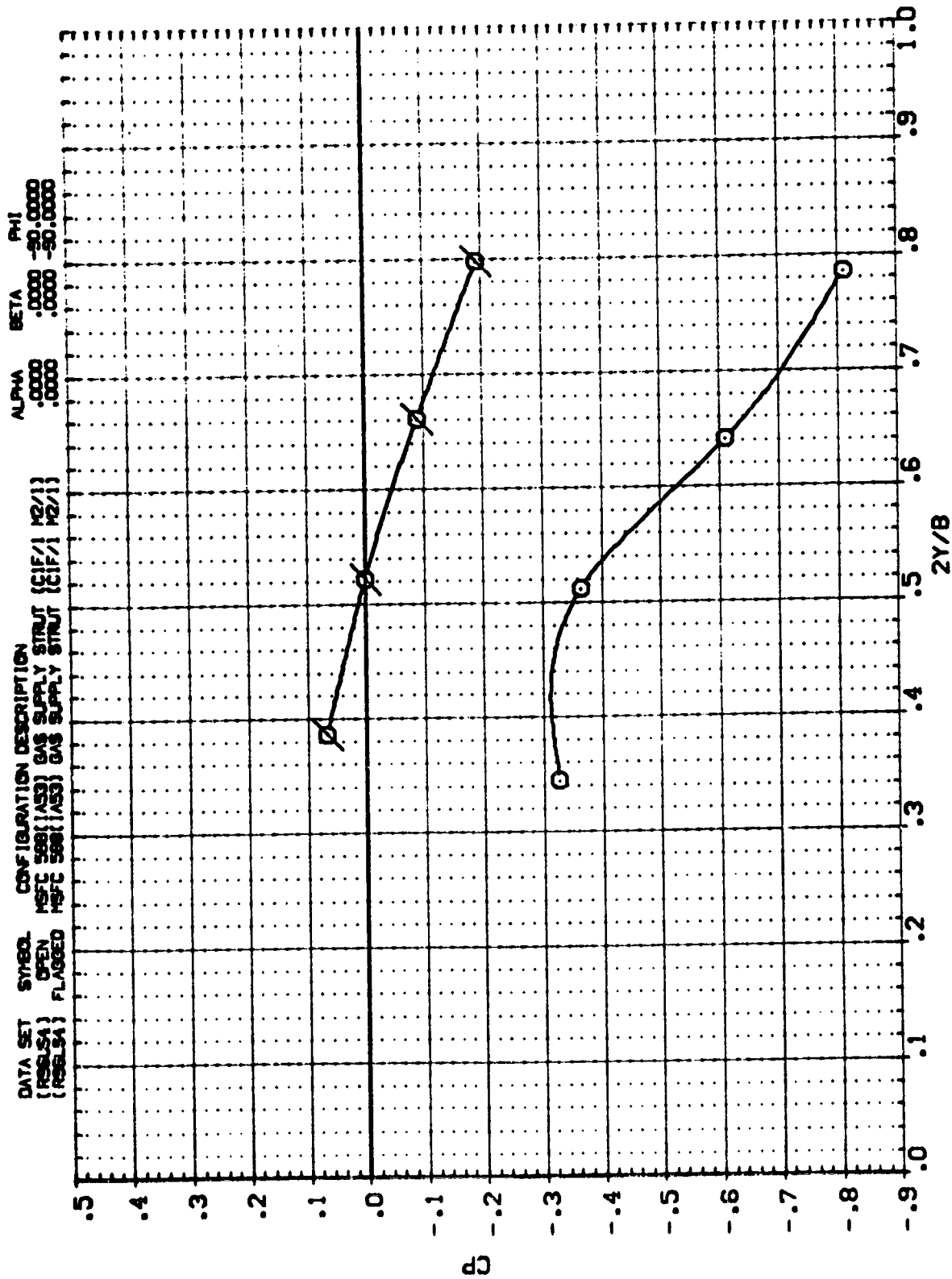
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O 150 .000 2.980



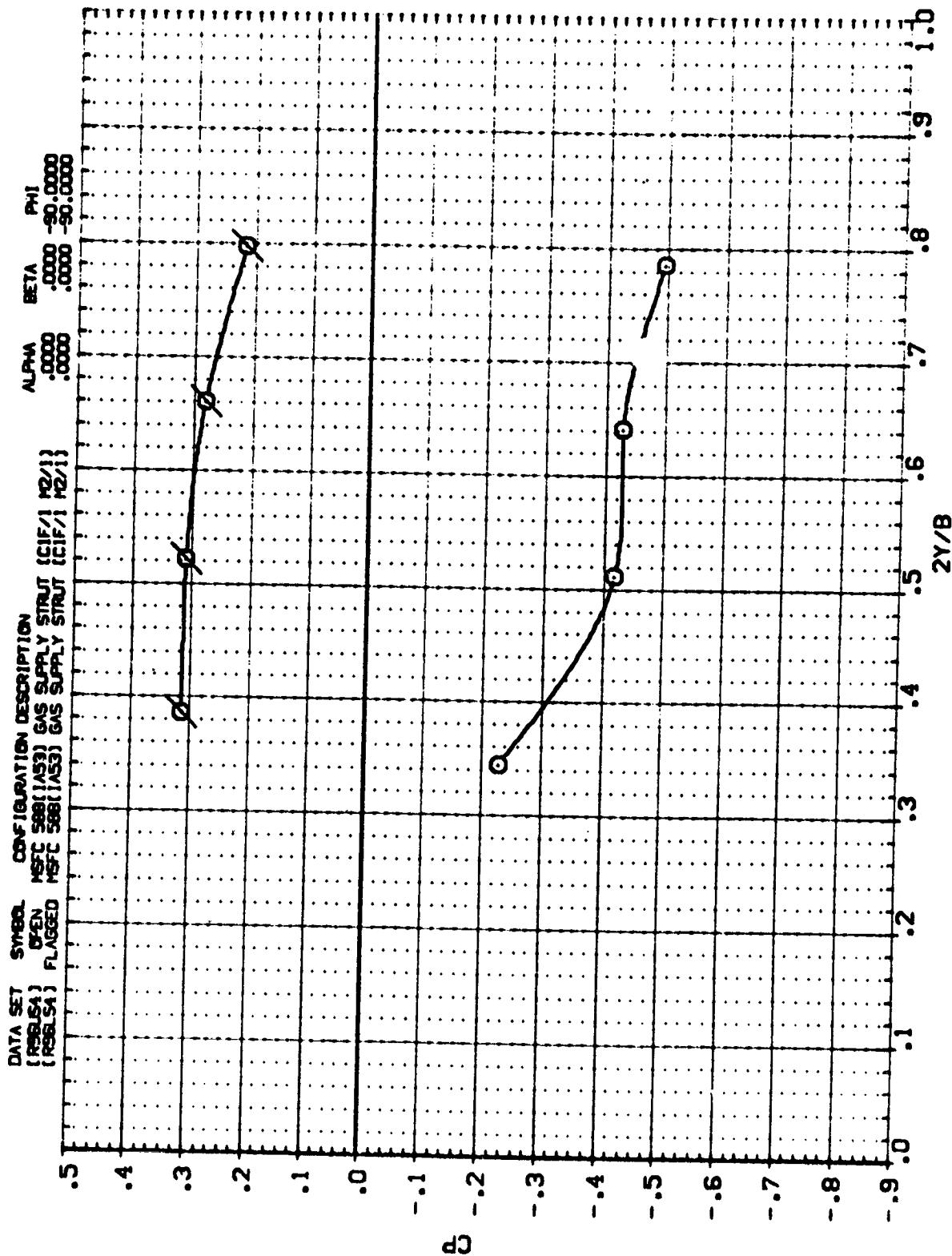
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 .857



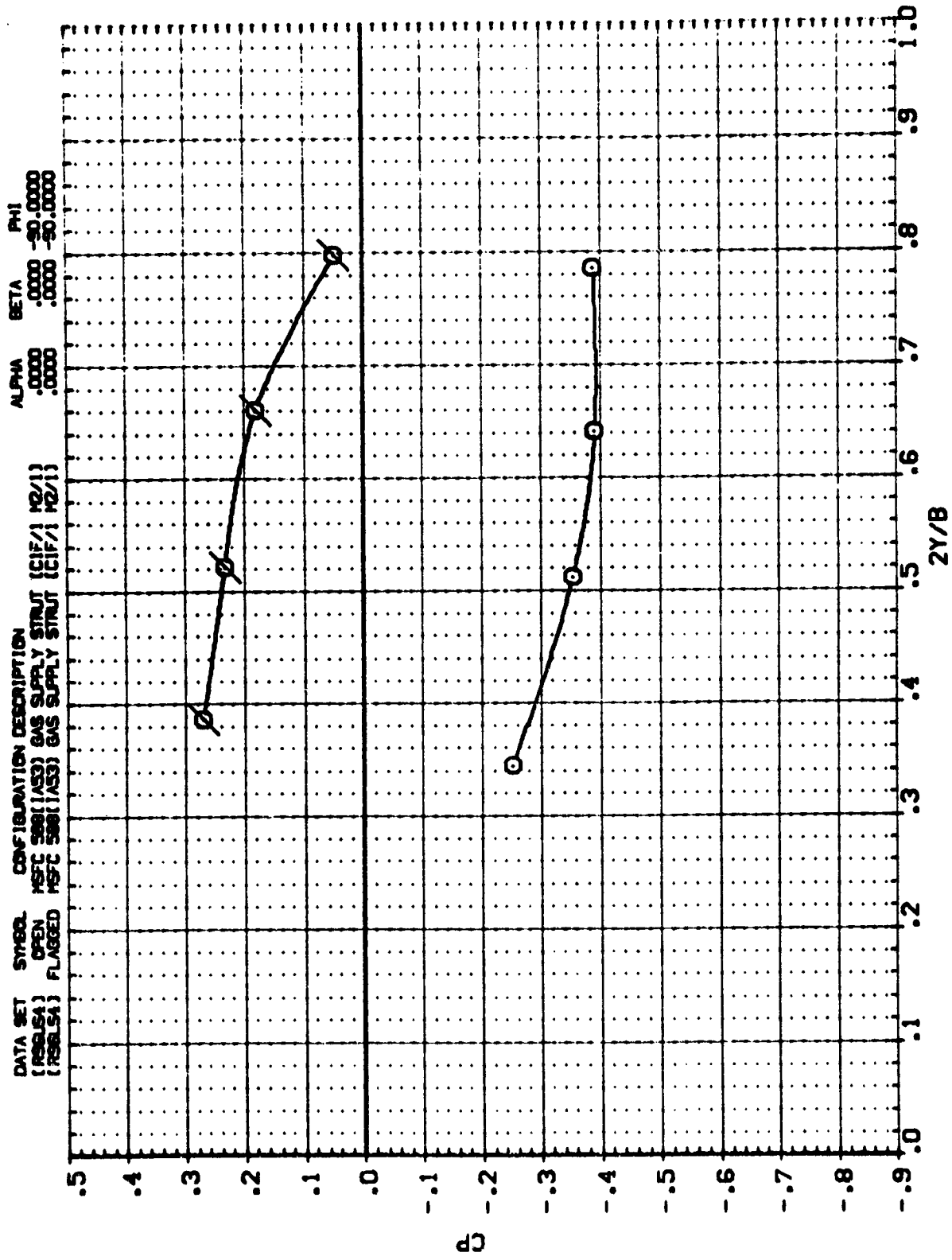
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.207



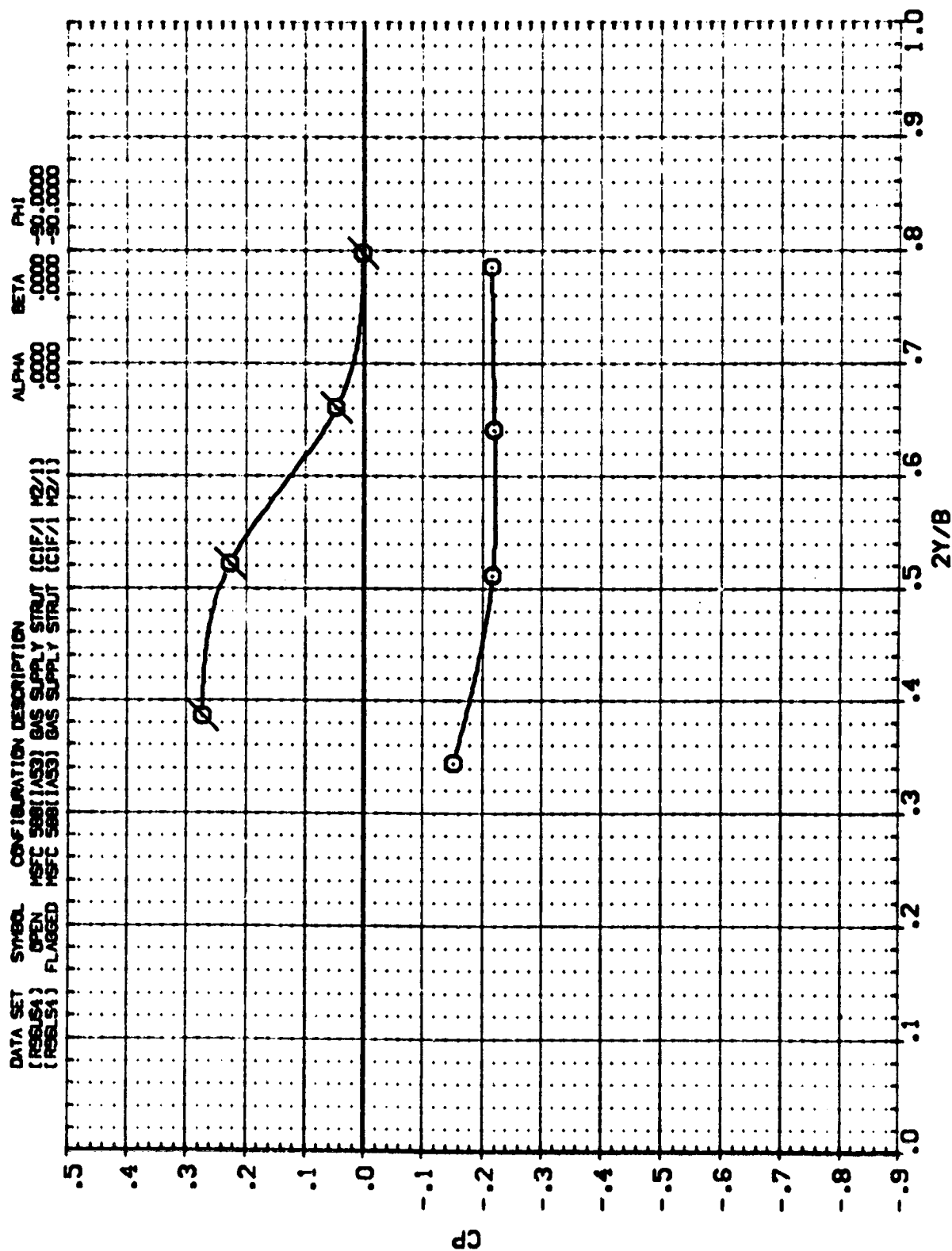
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.484



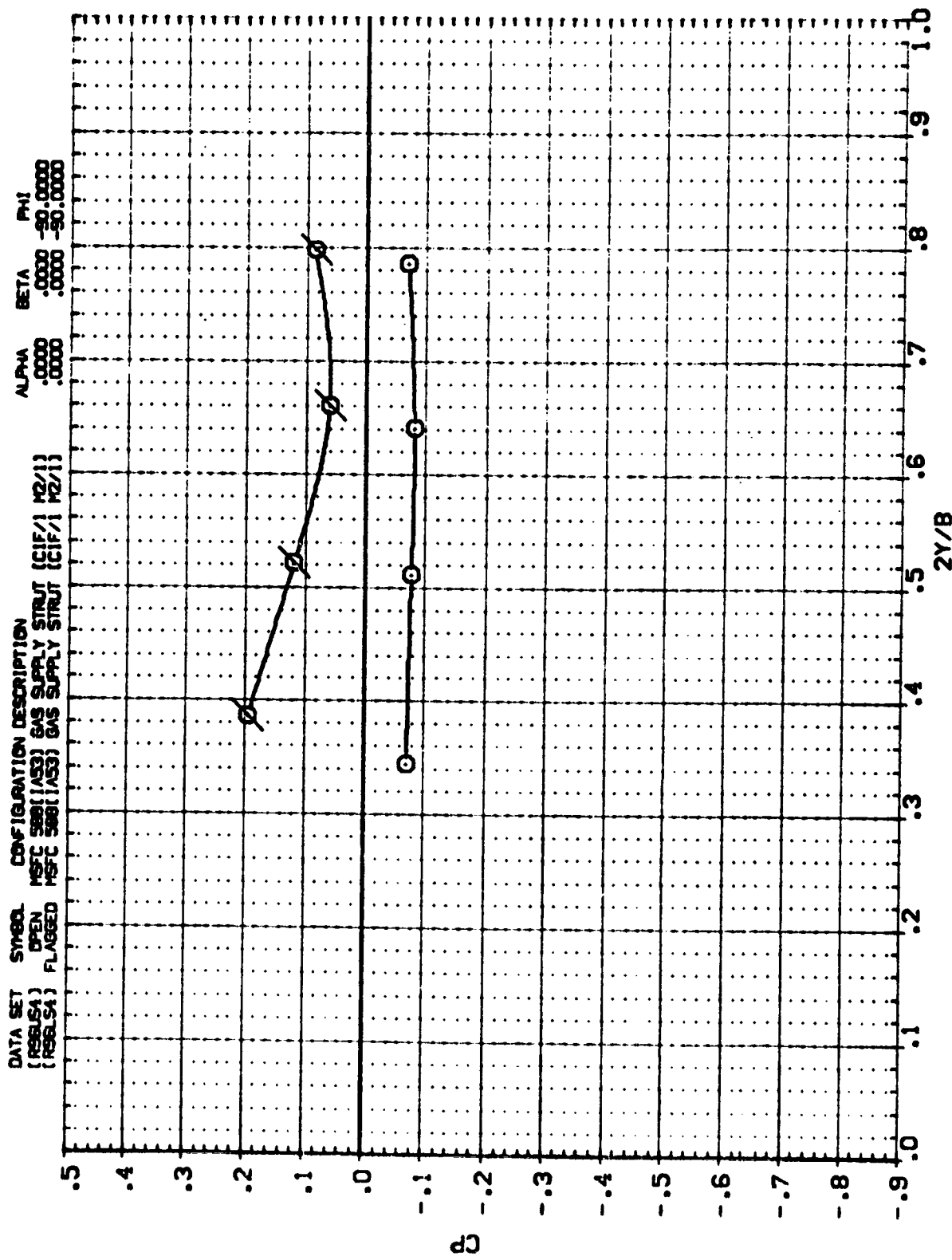
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.500



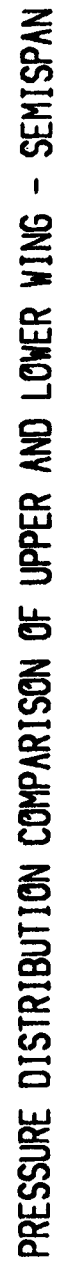
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 2.980

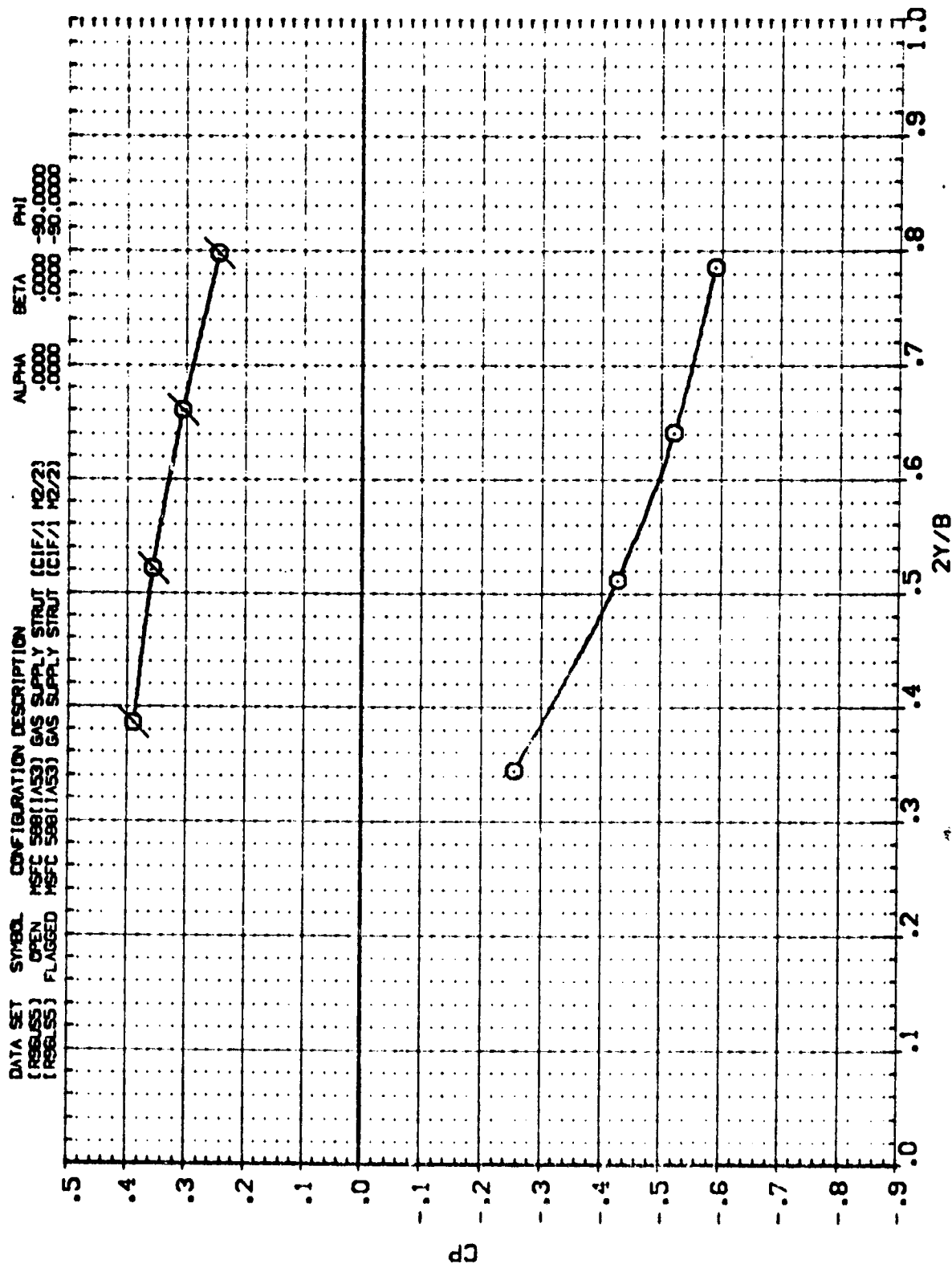


PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(R5B55)	OPEN	HSTC 588(1A33) GAS SUPPLY STRUT (C1F/1 H2/2)	.0000	.0000	-90.0000
(R5B55)	FLAGGED	HSTC 588(1A33) GAS SUPPLY STRUT (C1F/1 H2/2)	.0000	.0000	-90.0000

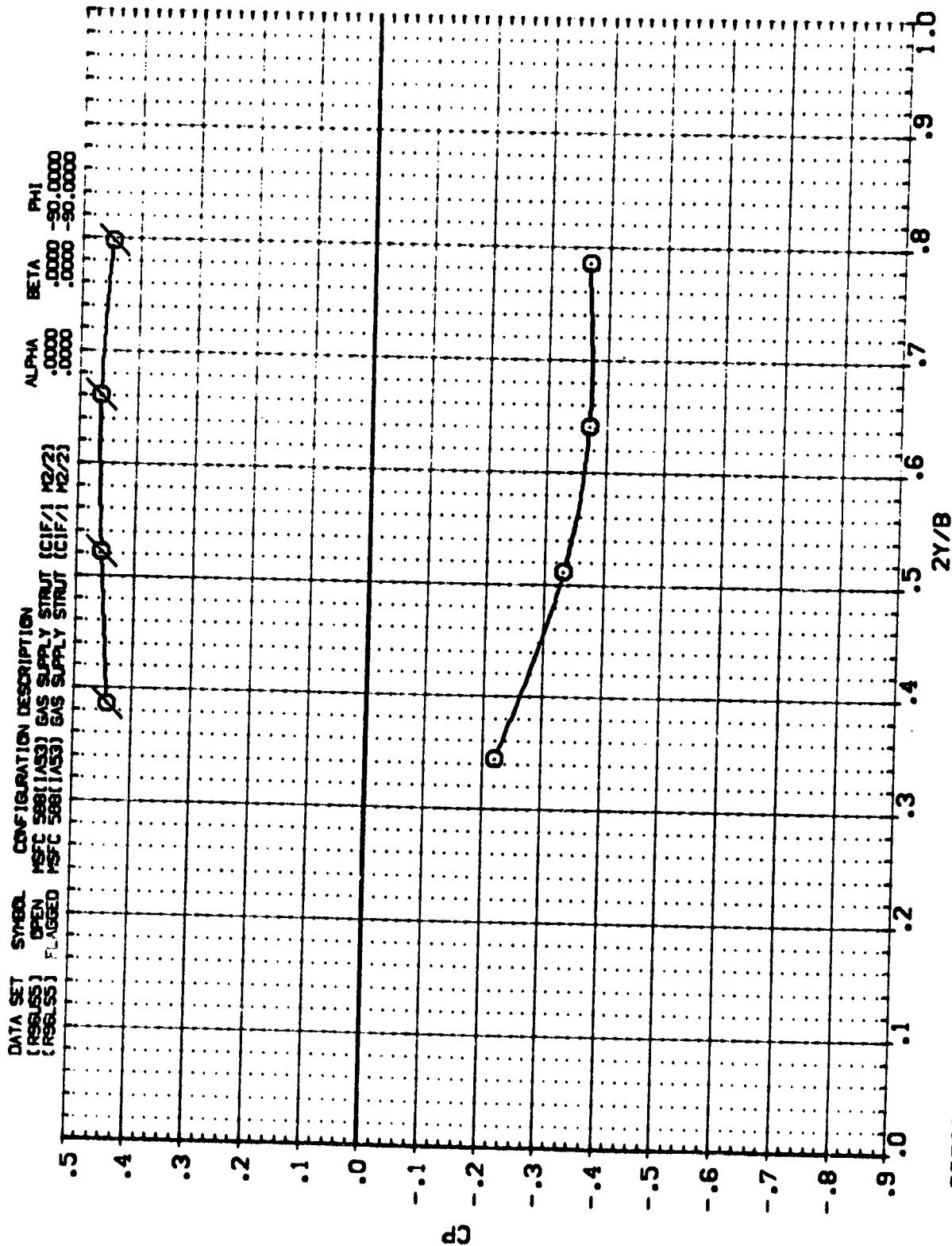


SYMBOL X/C ALPHA MACH
 O .490 .000 1.198



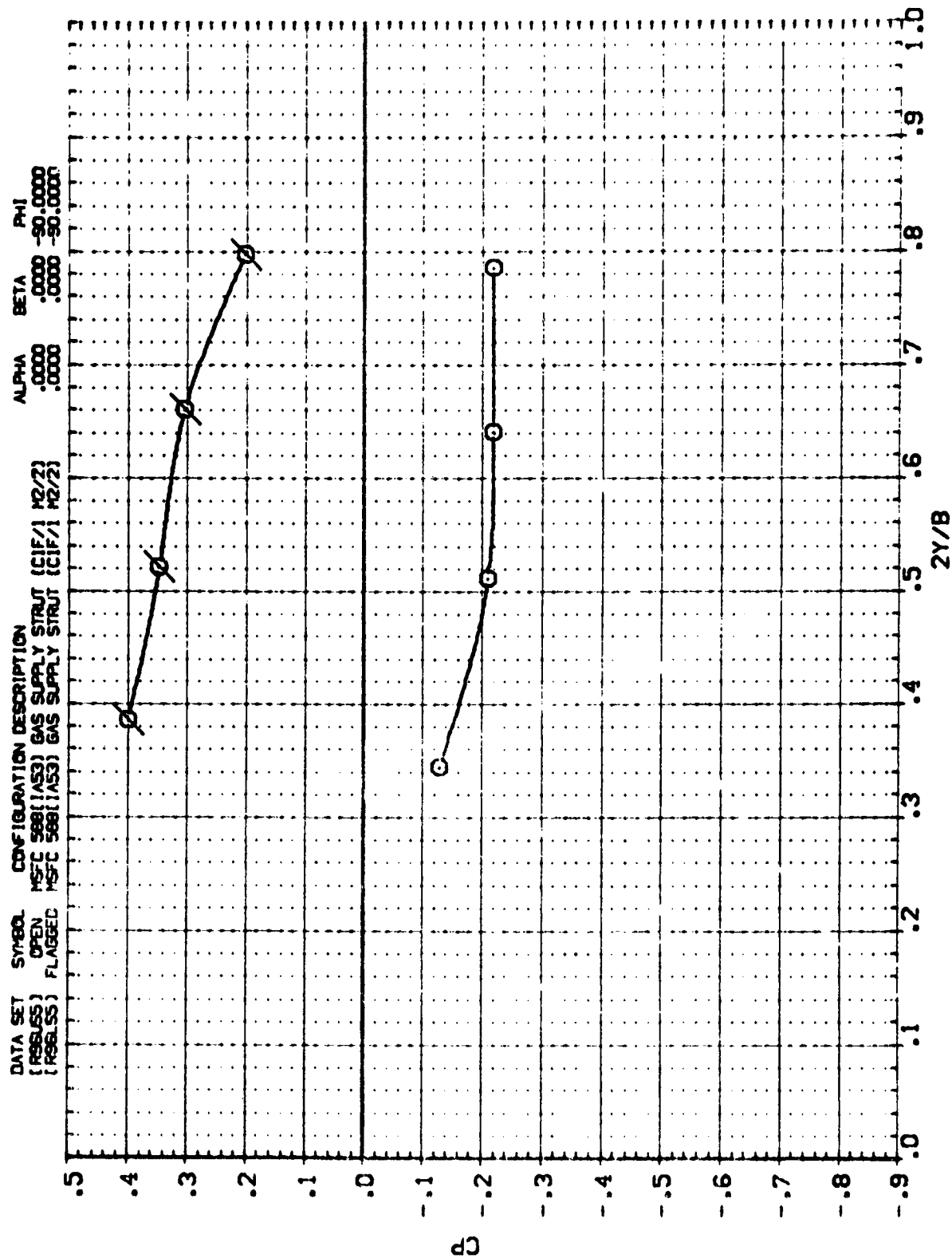
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.457



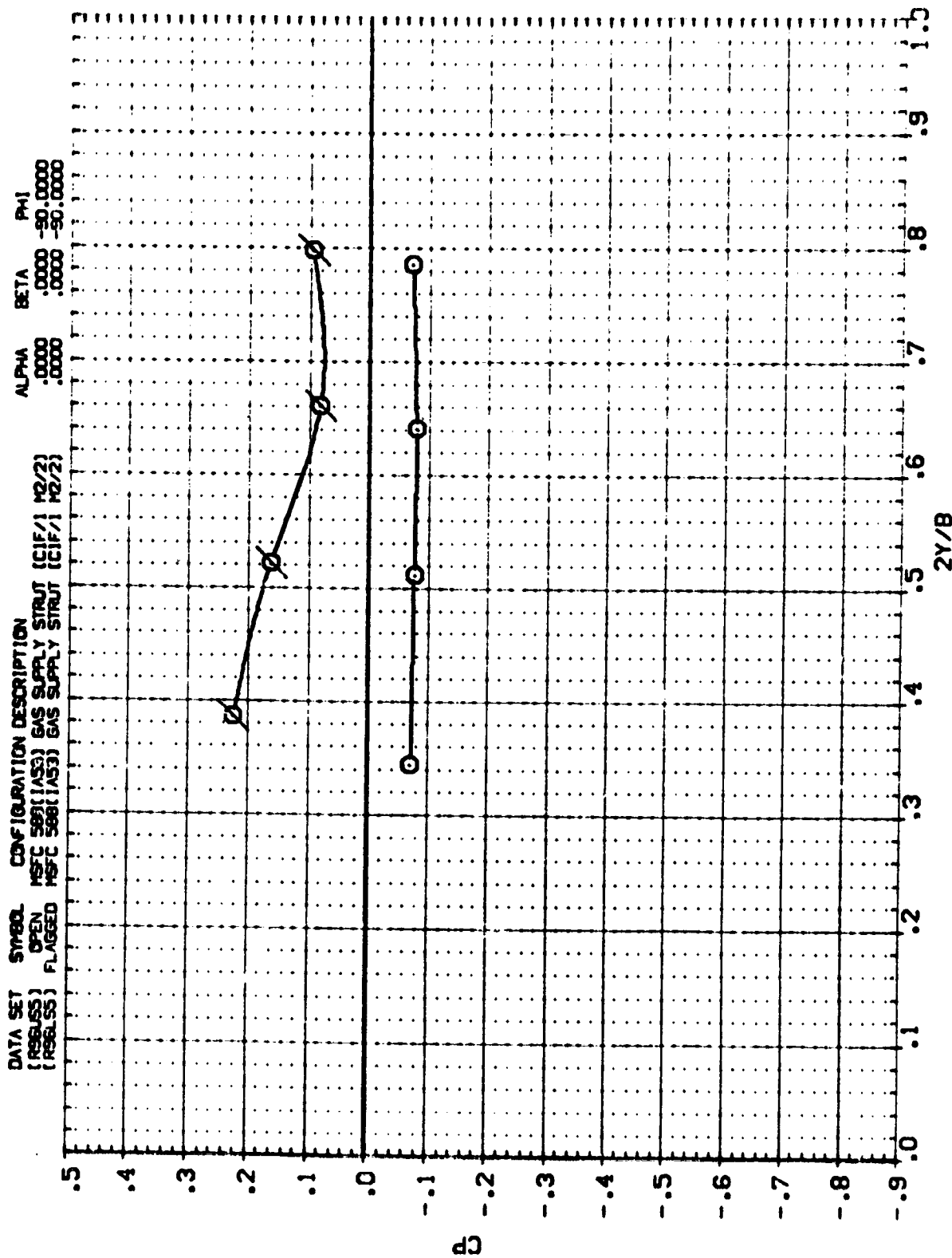
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.949



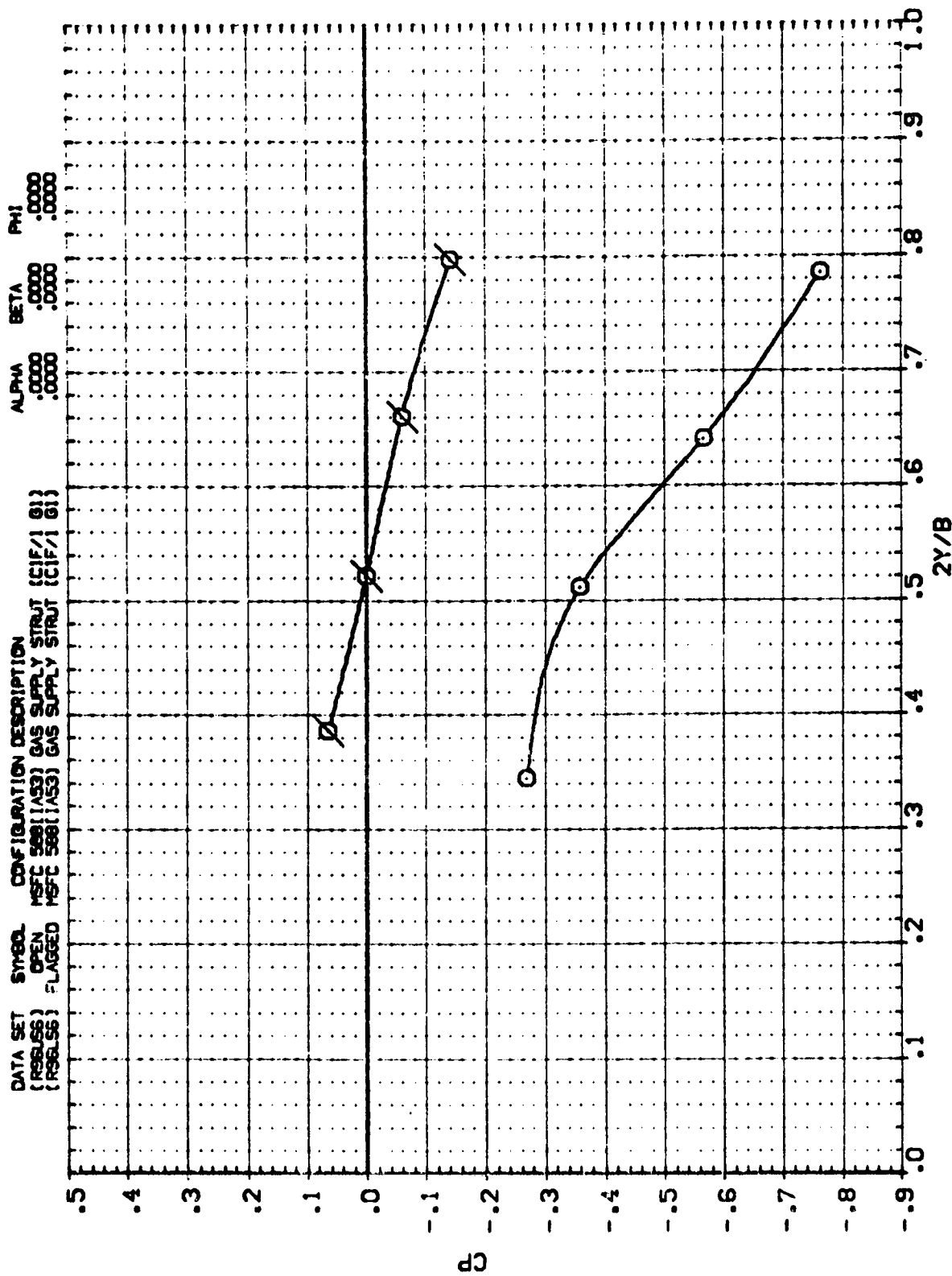
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 2.500



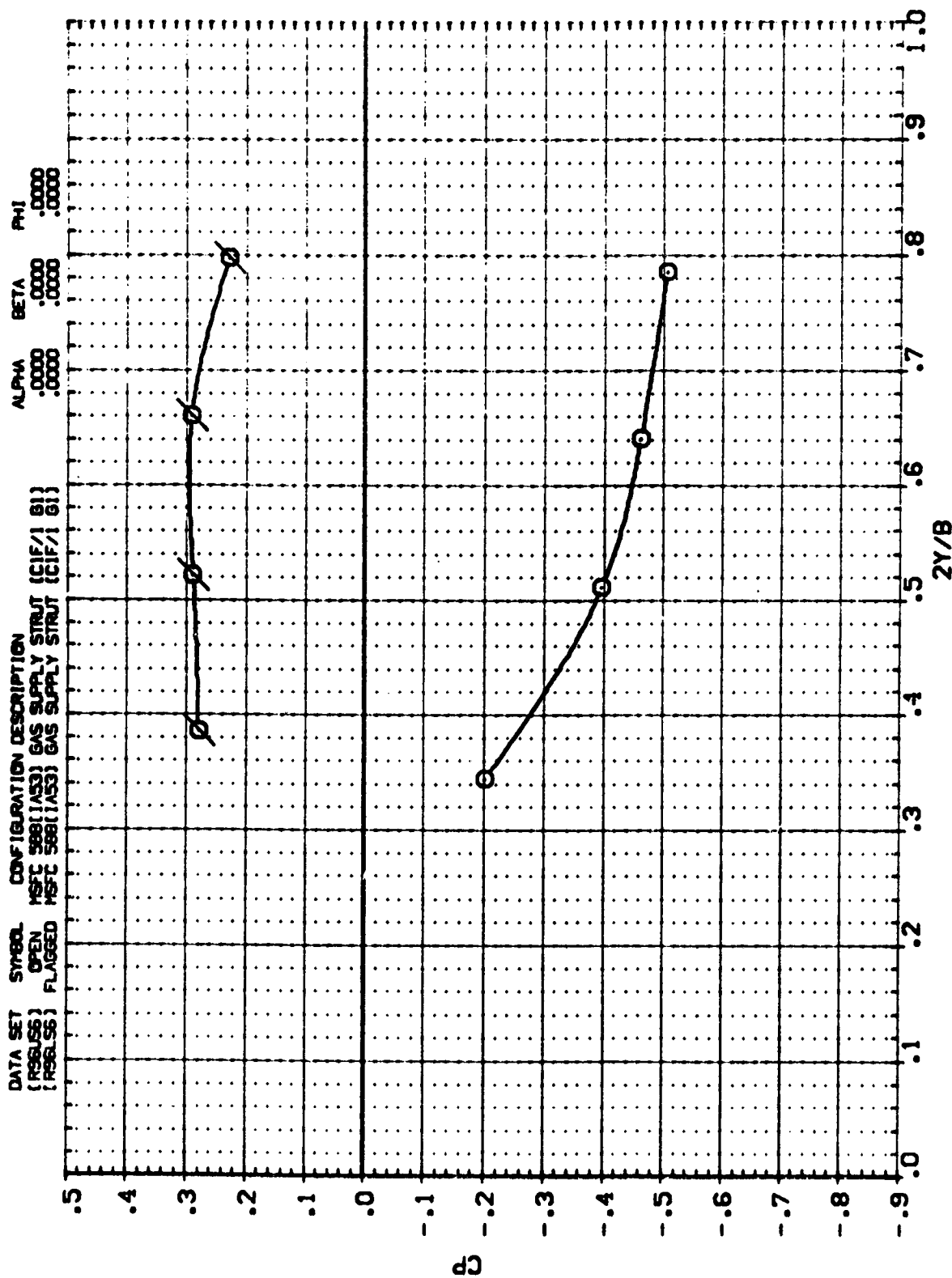
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .150 .000 .506



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

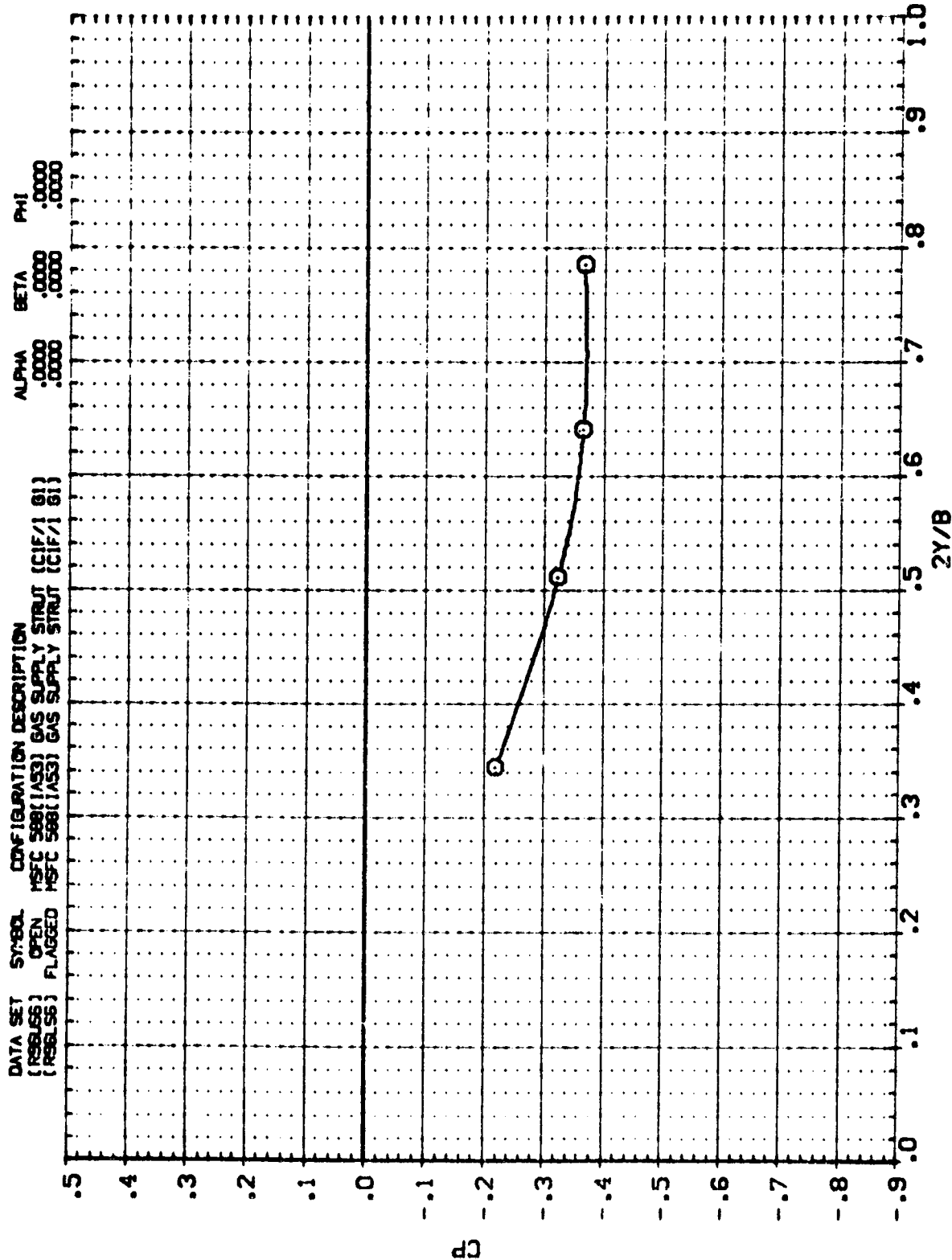
SYMBOL X/C ALPHA MACH
 O .450 .000 1.196



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

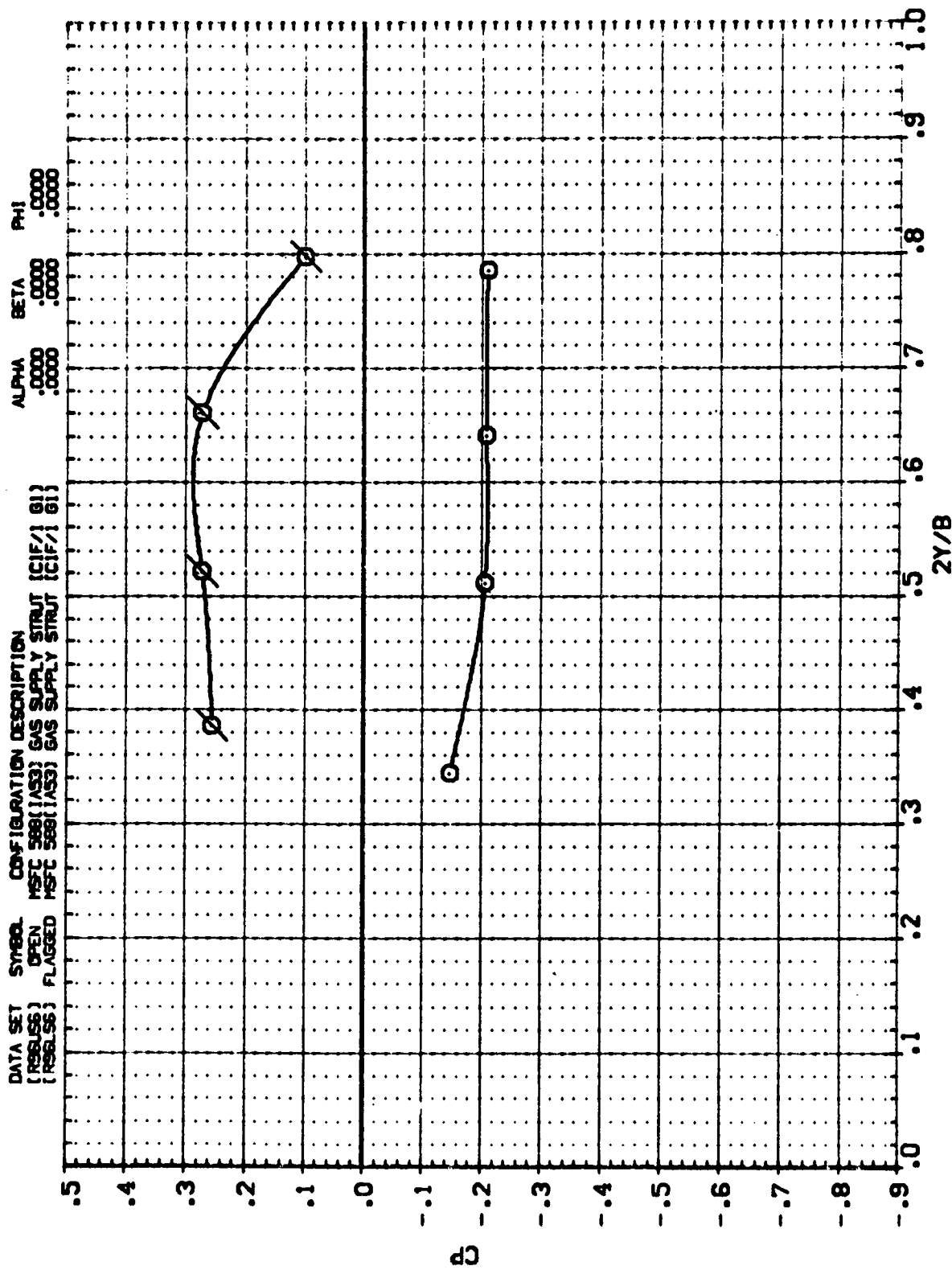
θ
 θ
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SYMBOL X/C ALPHA MACH
 O .450 .000 1.455



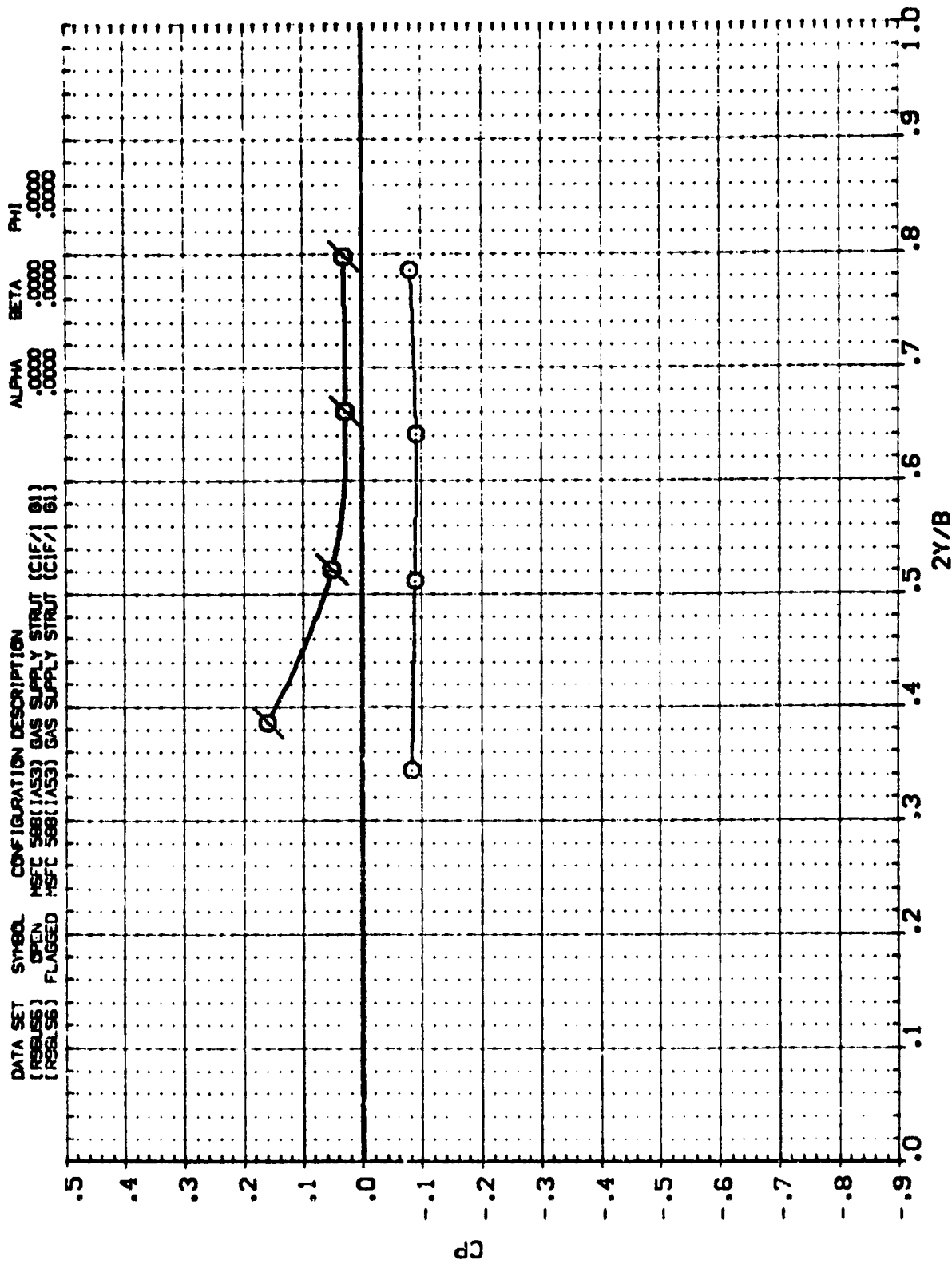
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.558



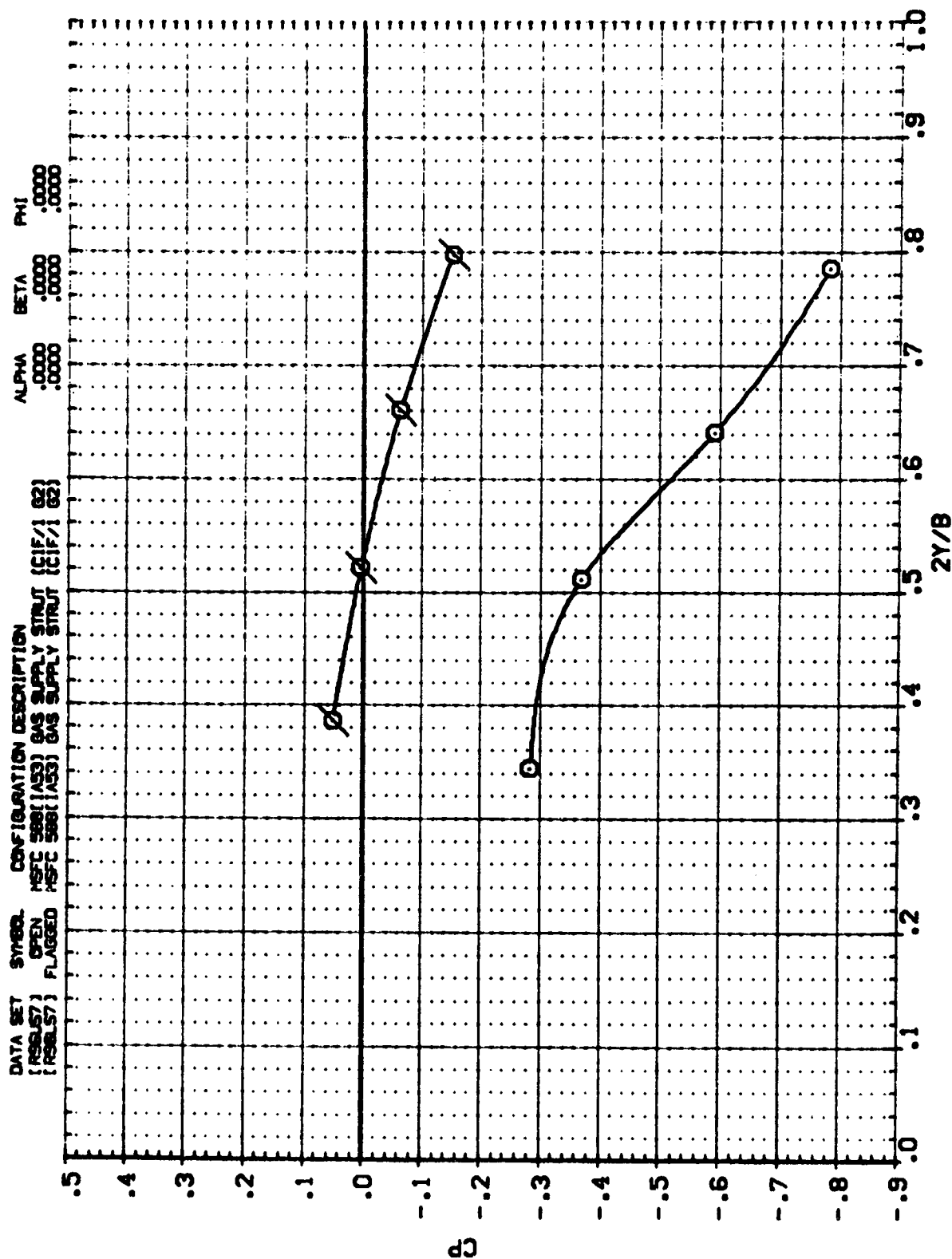
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 2.950



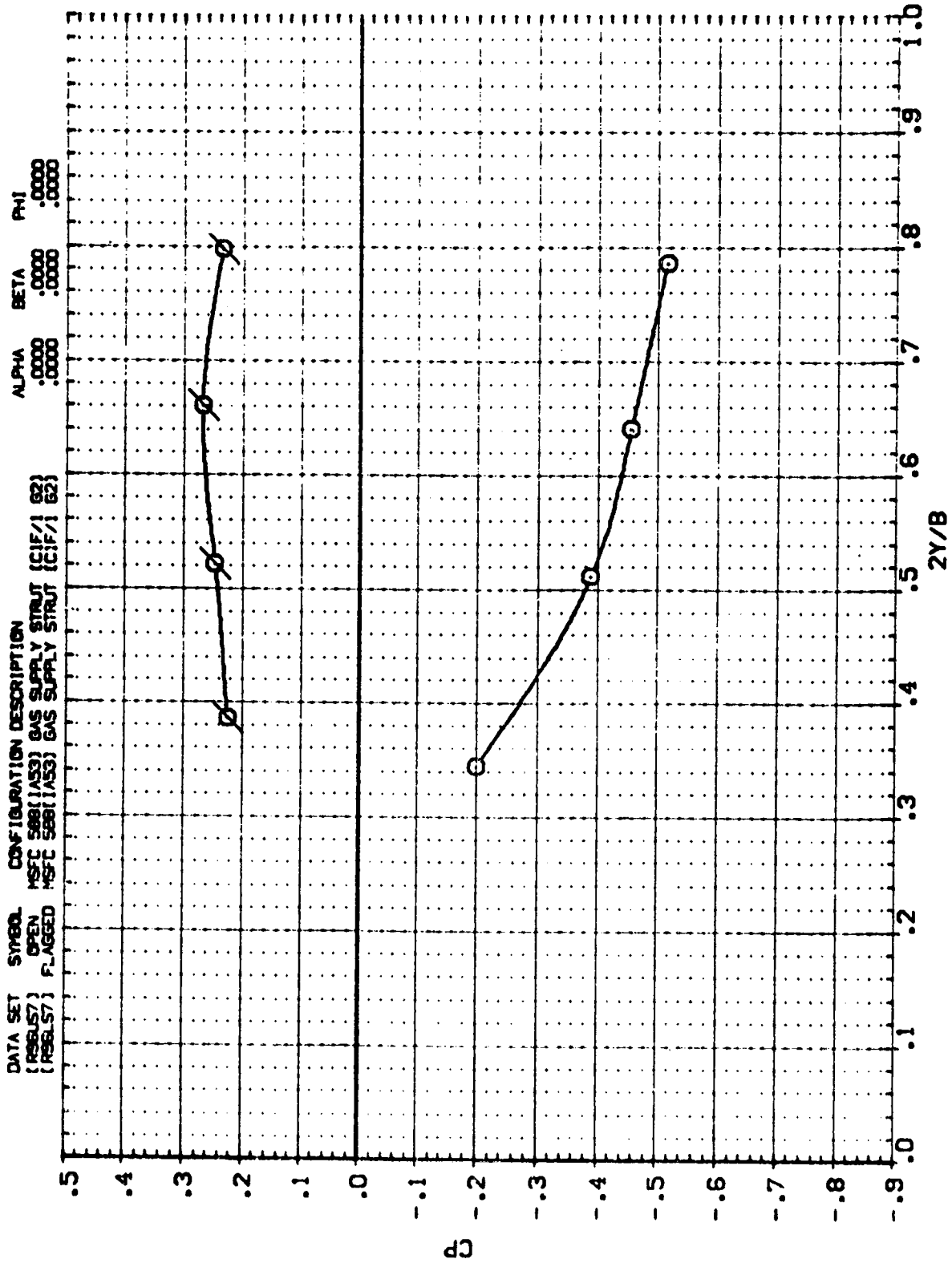
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 .888



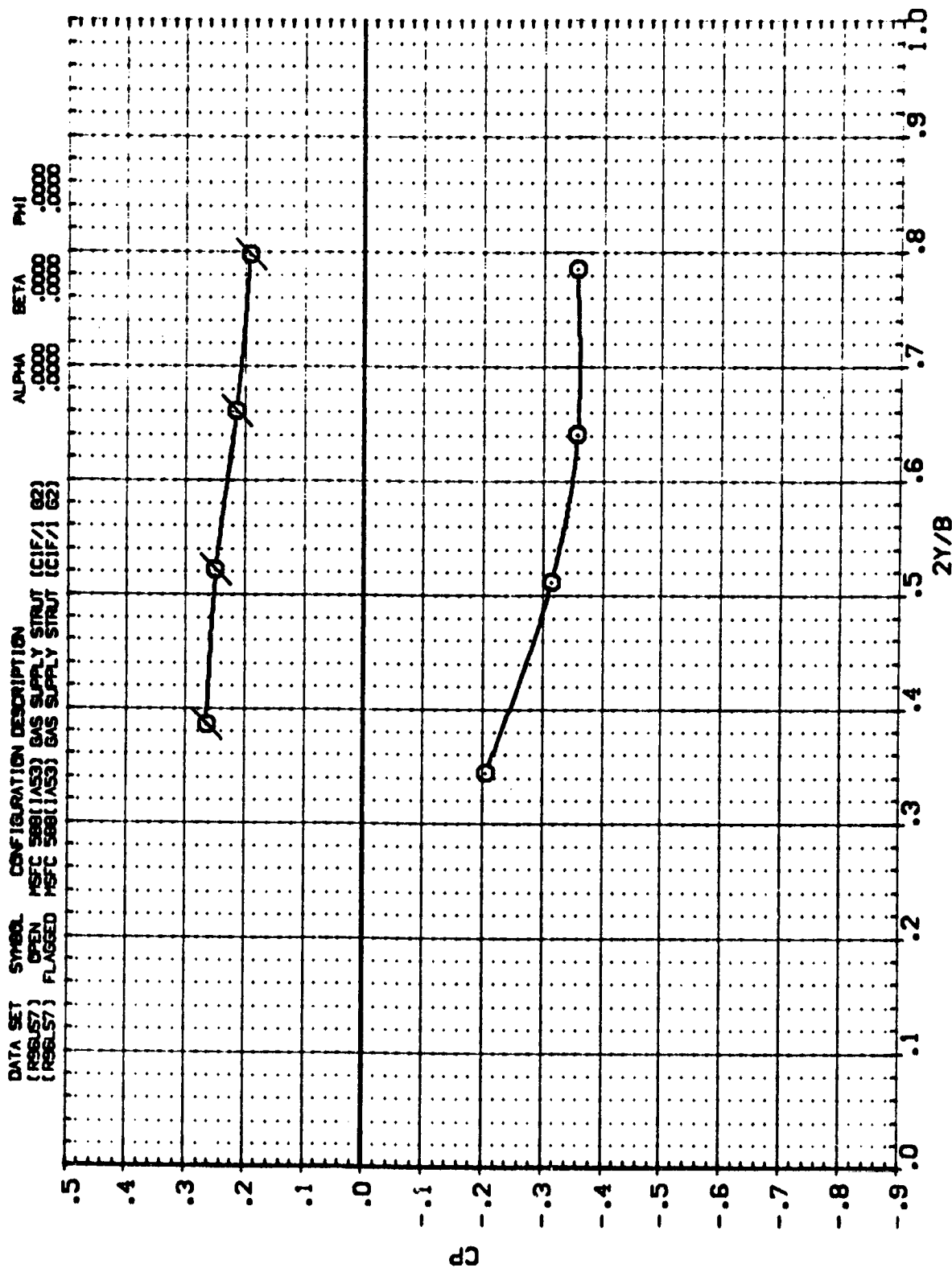
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.204



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.453



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

The graph displays the relationship between I_2/RG^2 (Y-axis) and $2Y/B$ (X-axis). The Y-axis ranges from -0.9 to 0.5, and the X-axis ranges from 0.0 to 1.0. Two data series are plotted, both labeled 'GAS SUPPLY STRUT (CIF/1 62)'.

Data Series 1 (Left Curve):

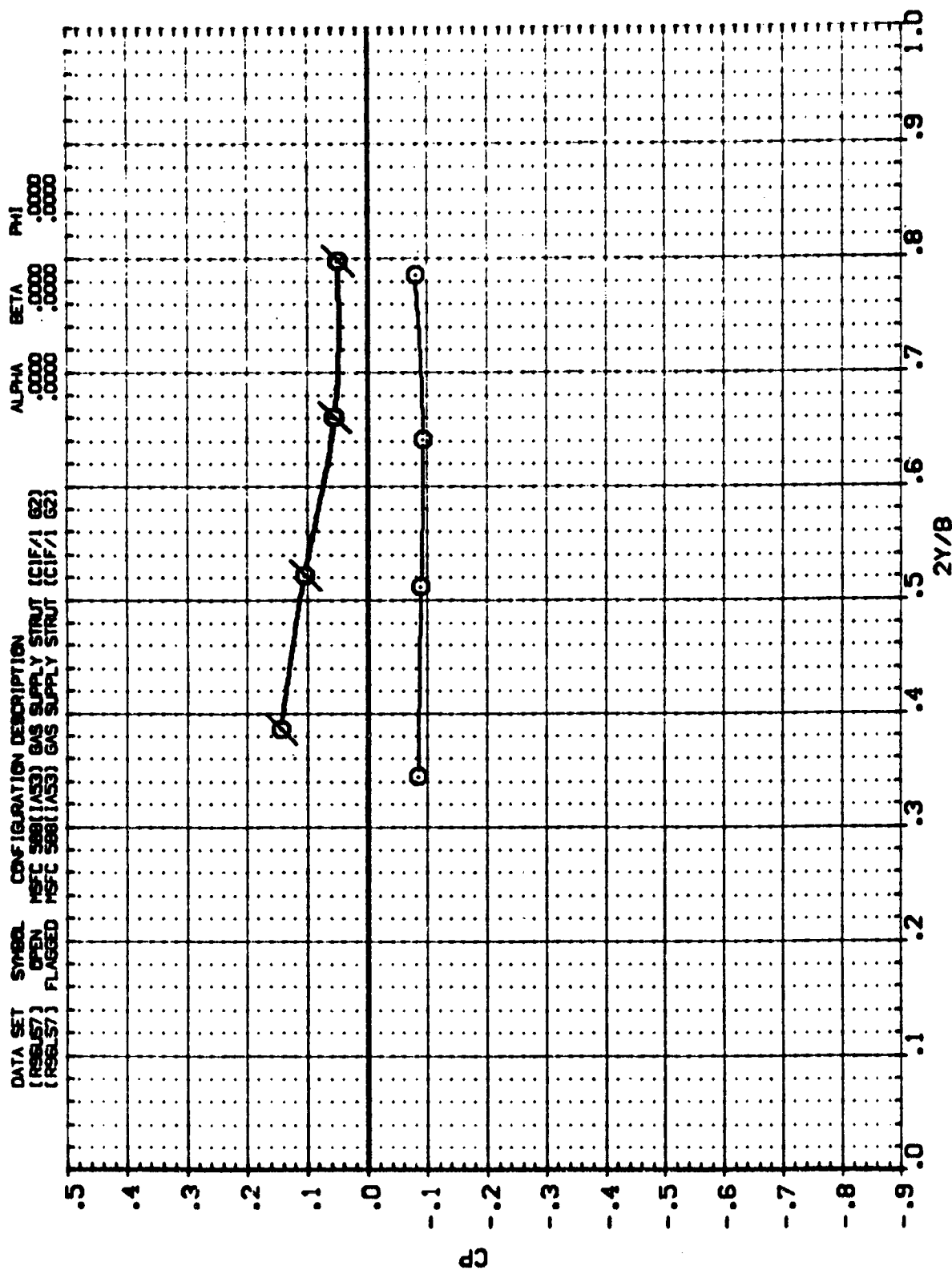
$2Y/B$	I_2/RG^2
0.35	-0.15
0.40	-0.18
0.45	-0.20
0.50	-0.22
0.55	-0.23
0.60	-0.24
0.65	-0.25
0.70	-0.26
0.75	-0.27
0.80	-0.28

Data Series 2 (Right Curve):

$2Y/B$	I_2/RG^2
0.30	-0.15
0.35	-0.18
0.40	-0.20
0.45	-0.22
0.50	-0.23
0.55	-0.24
0.60	-0.25
0.65	-0.26
0.70	-0.27
0.75	-0.28
0.80	-0.29

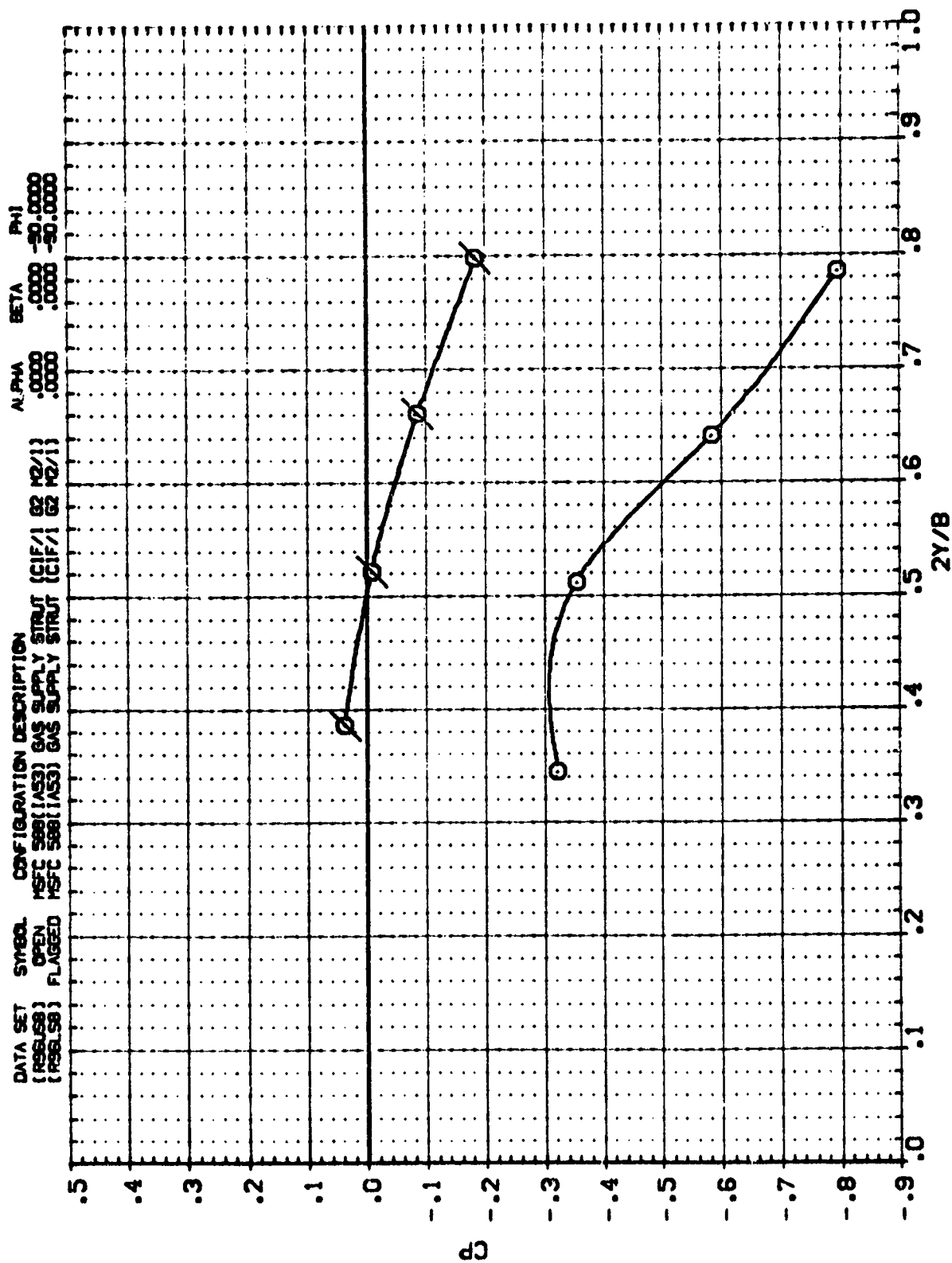
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 2.950



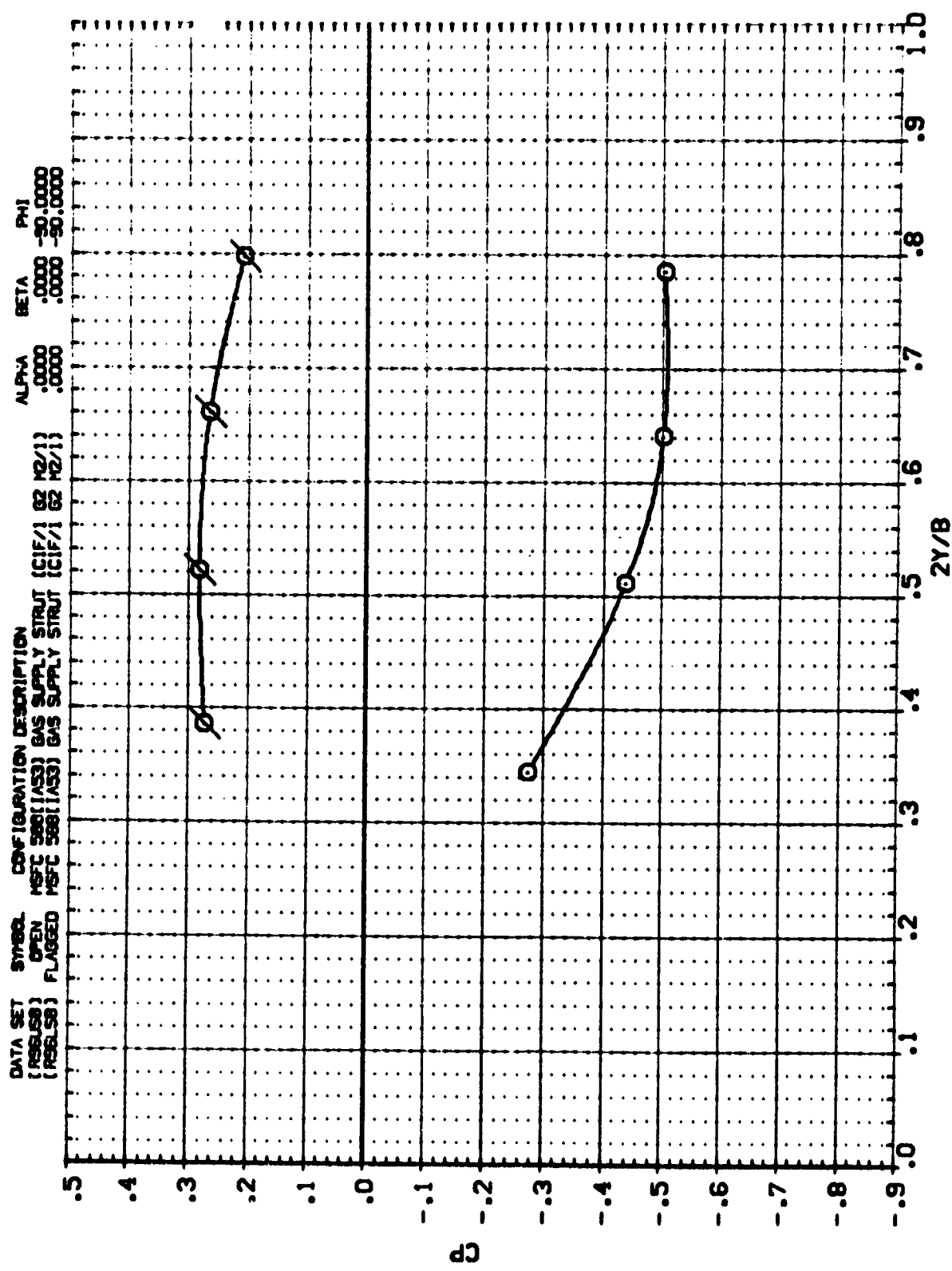
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 .504



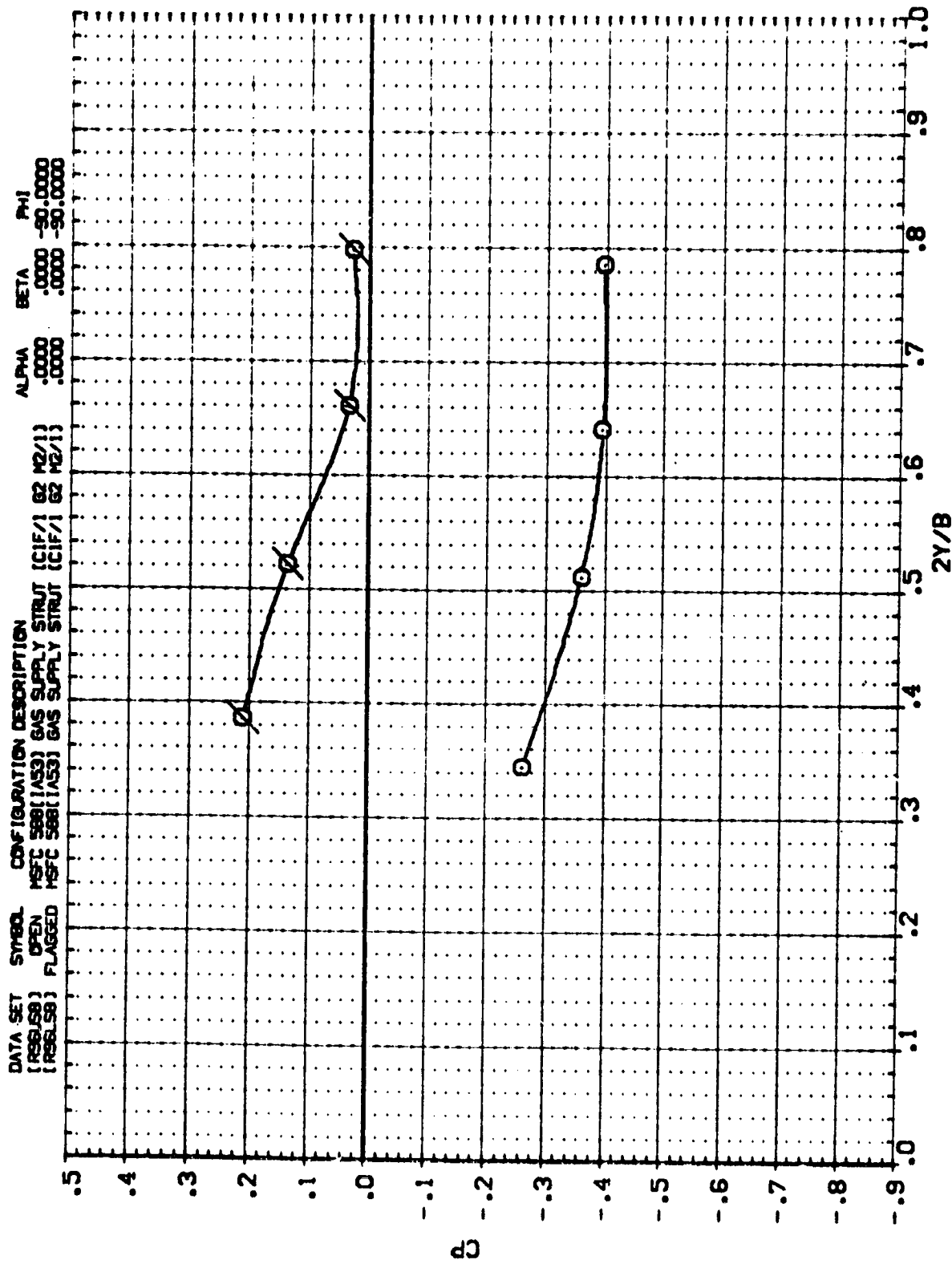
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .430 .000 1.126



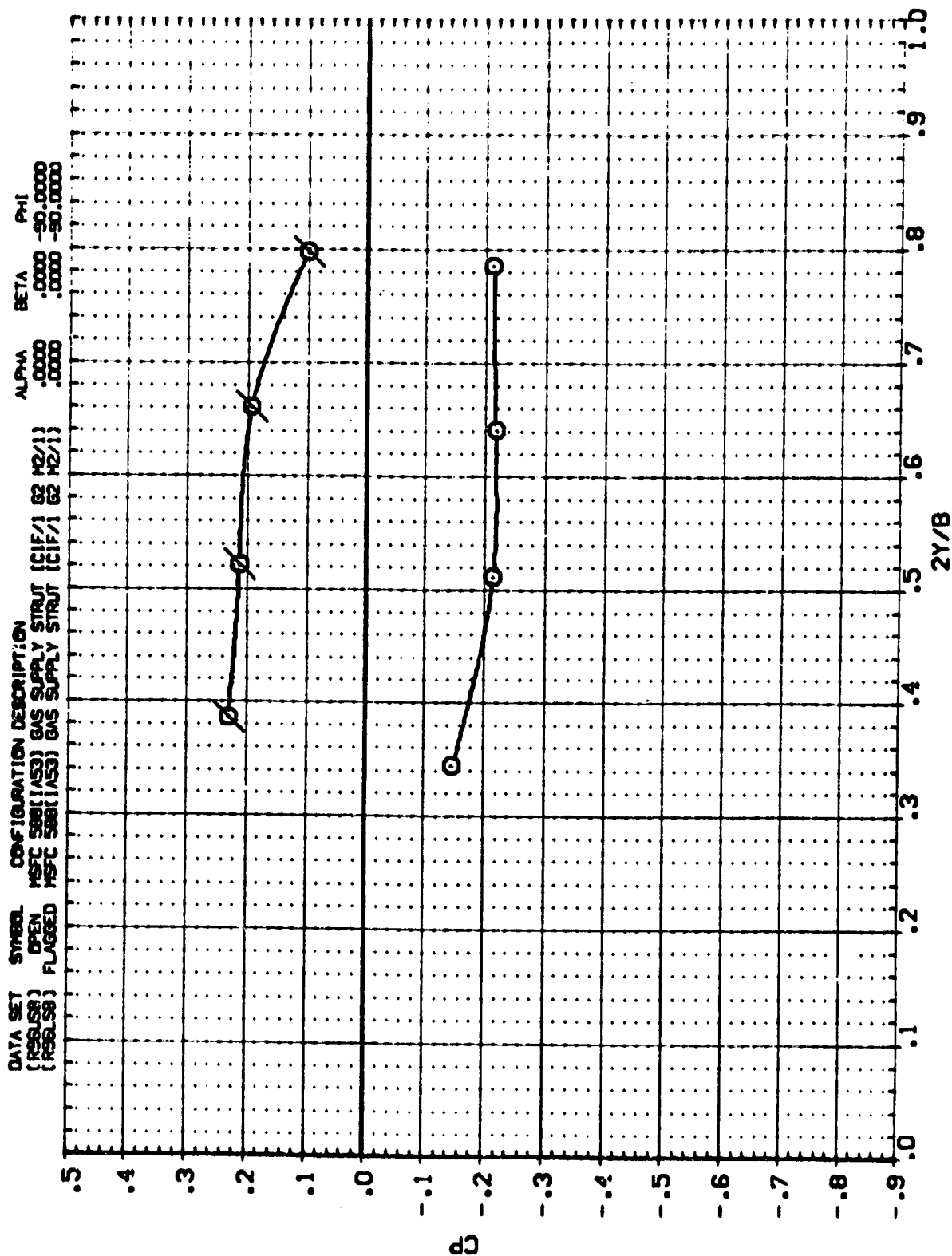
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.453



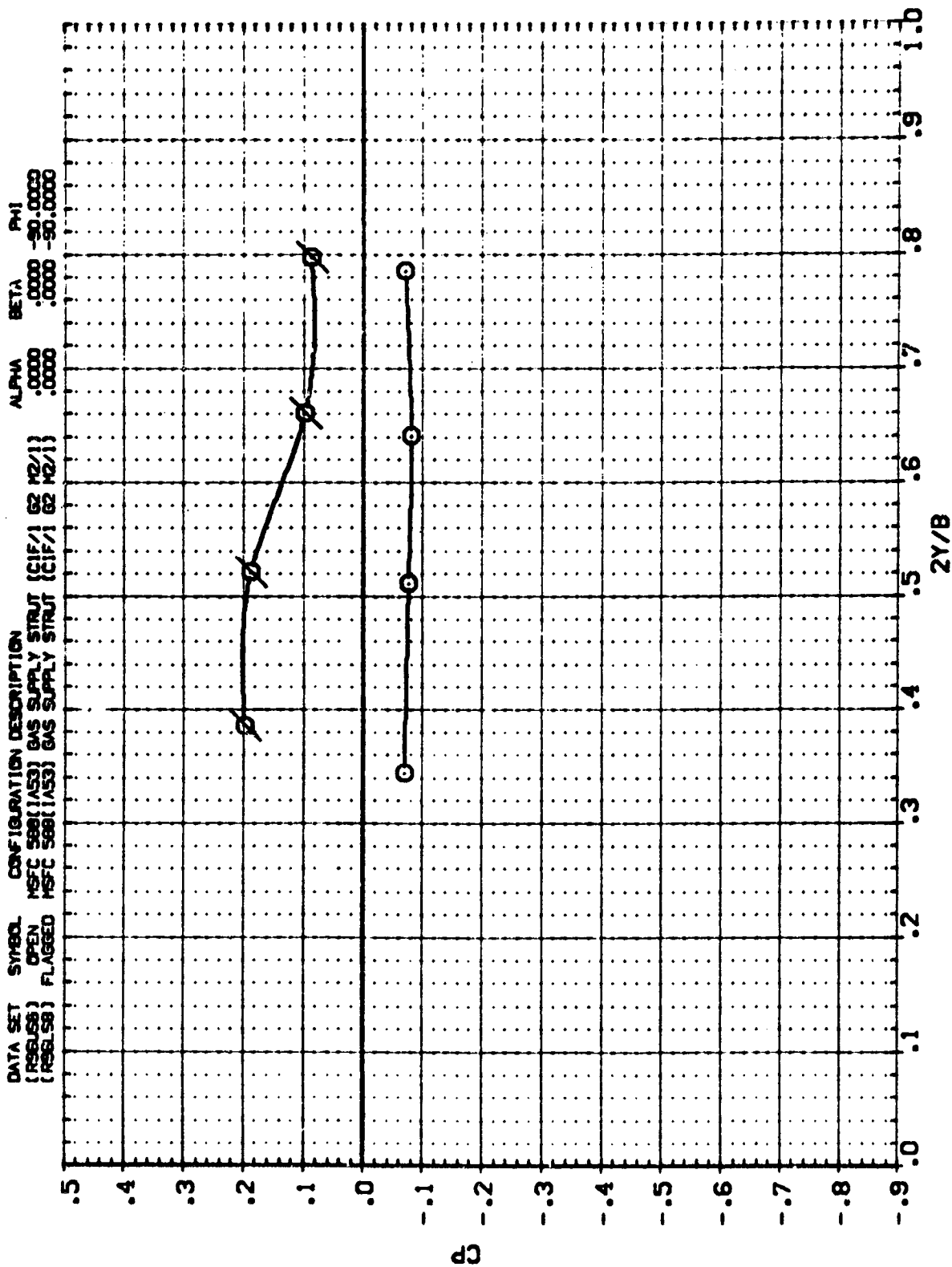
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 1.958



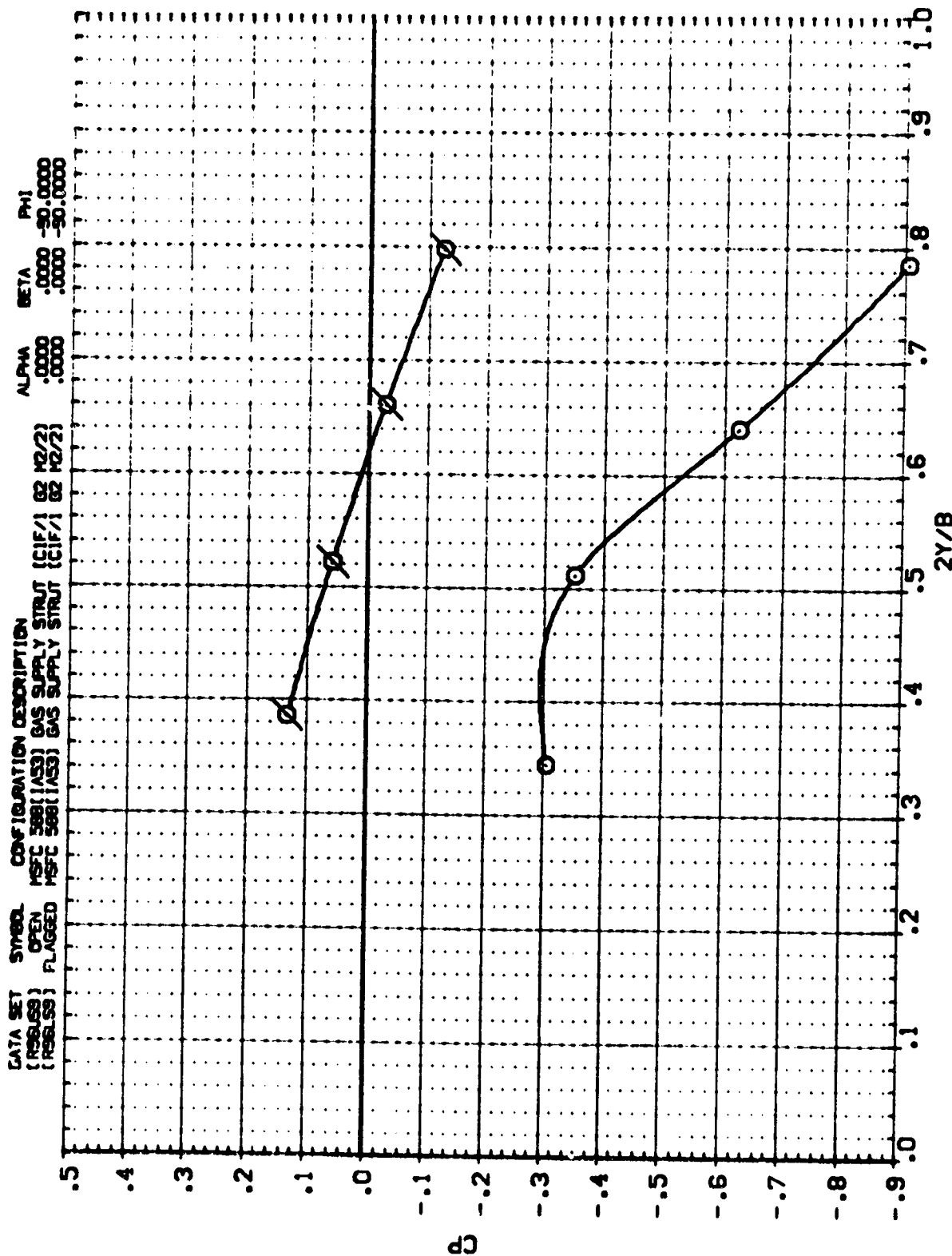
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 2.950



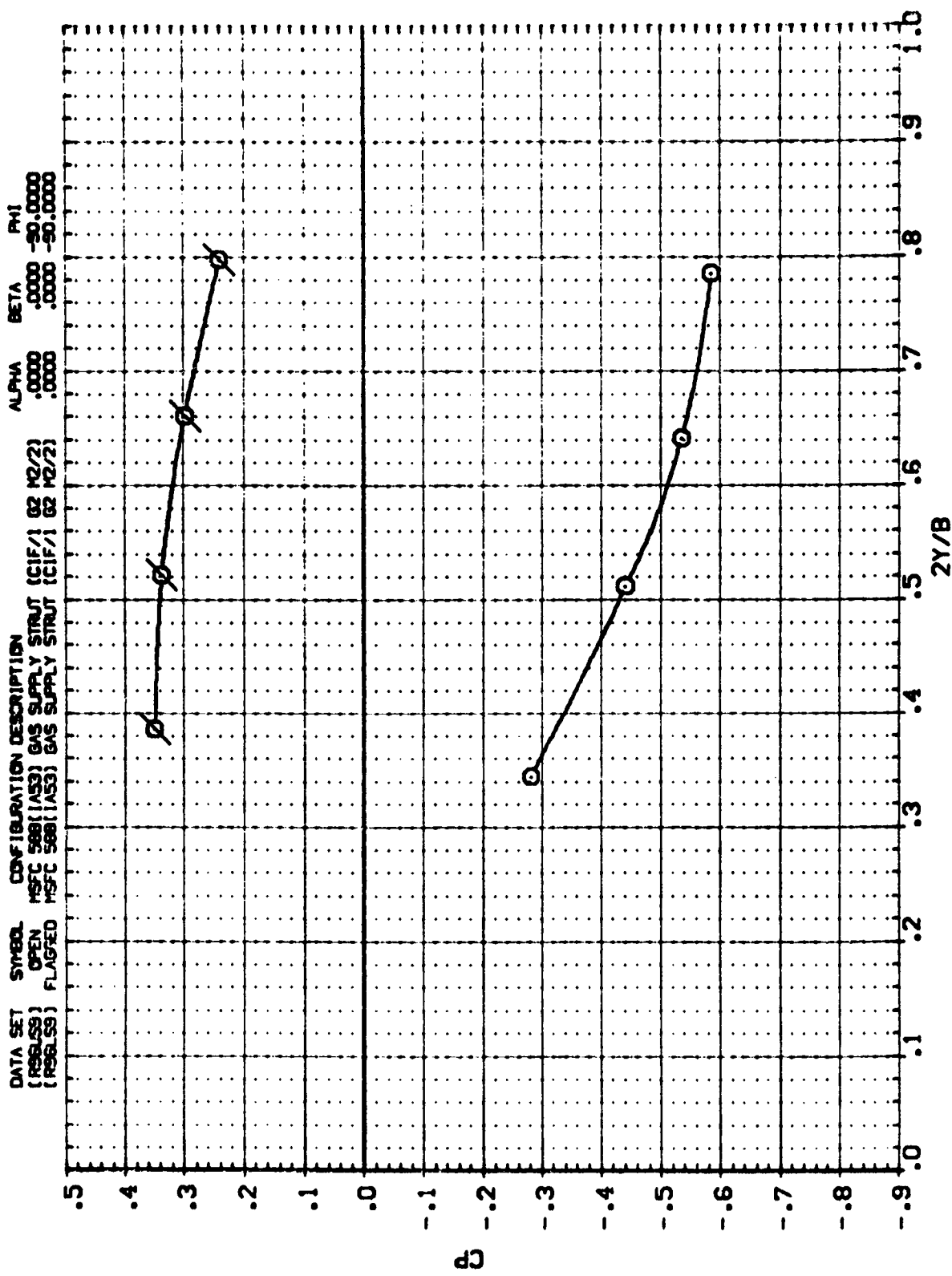
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .450 .000 .502



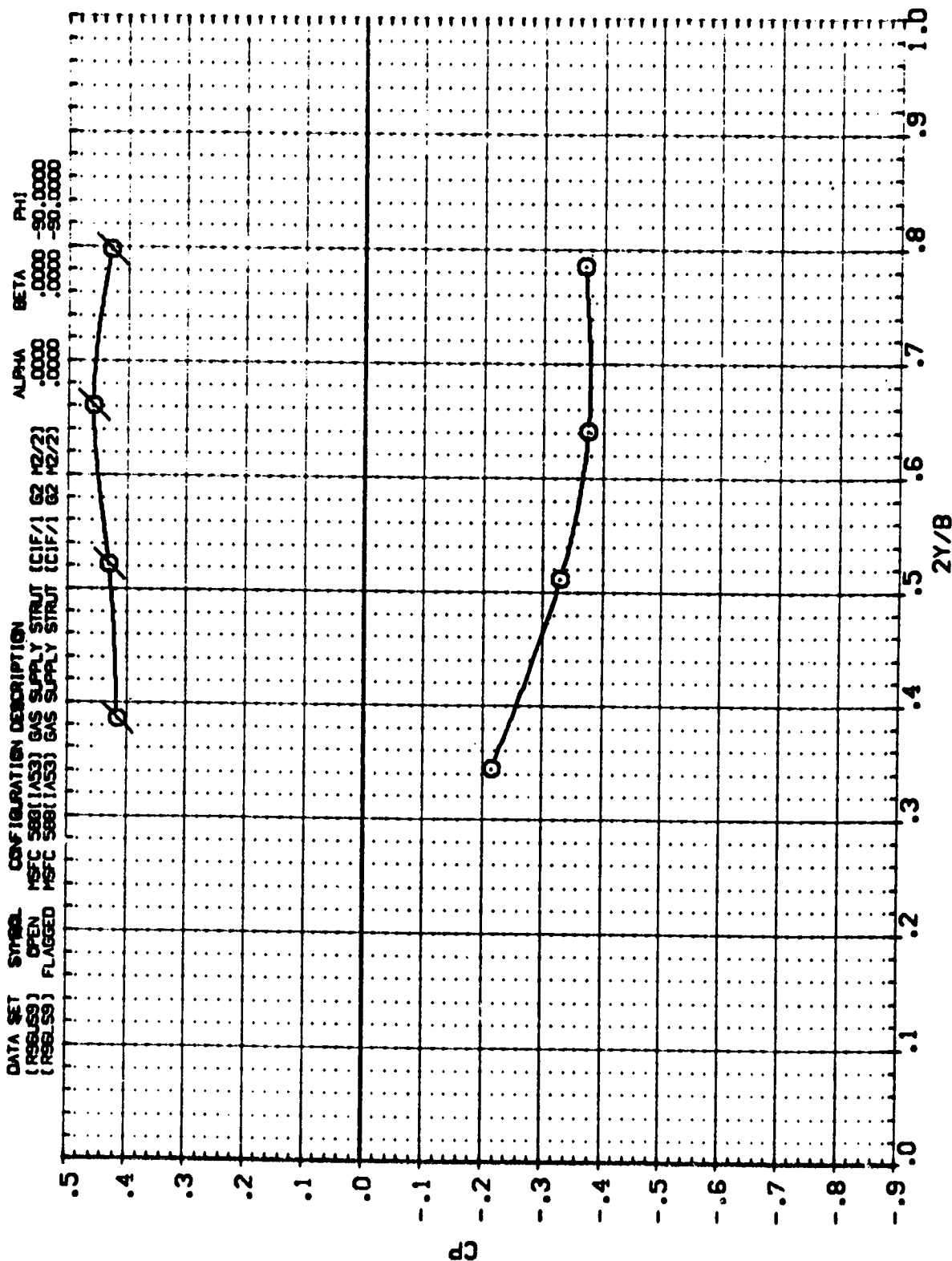
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.159



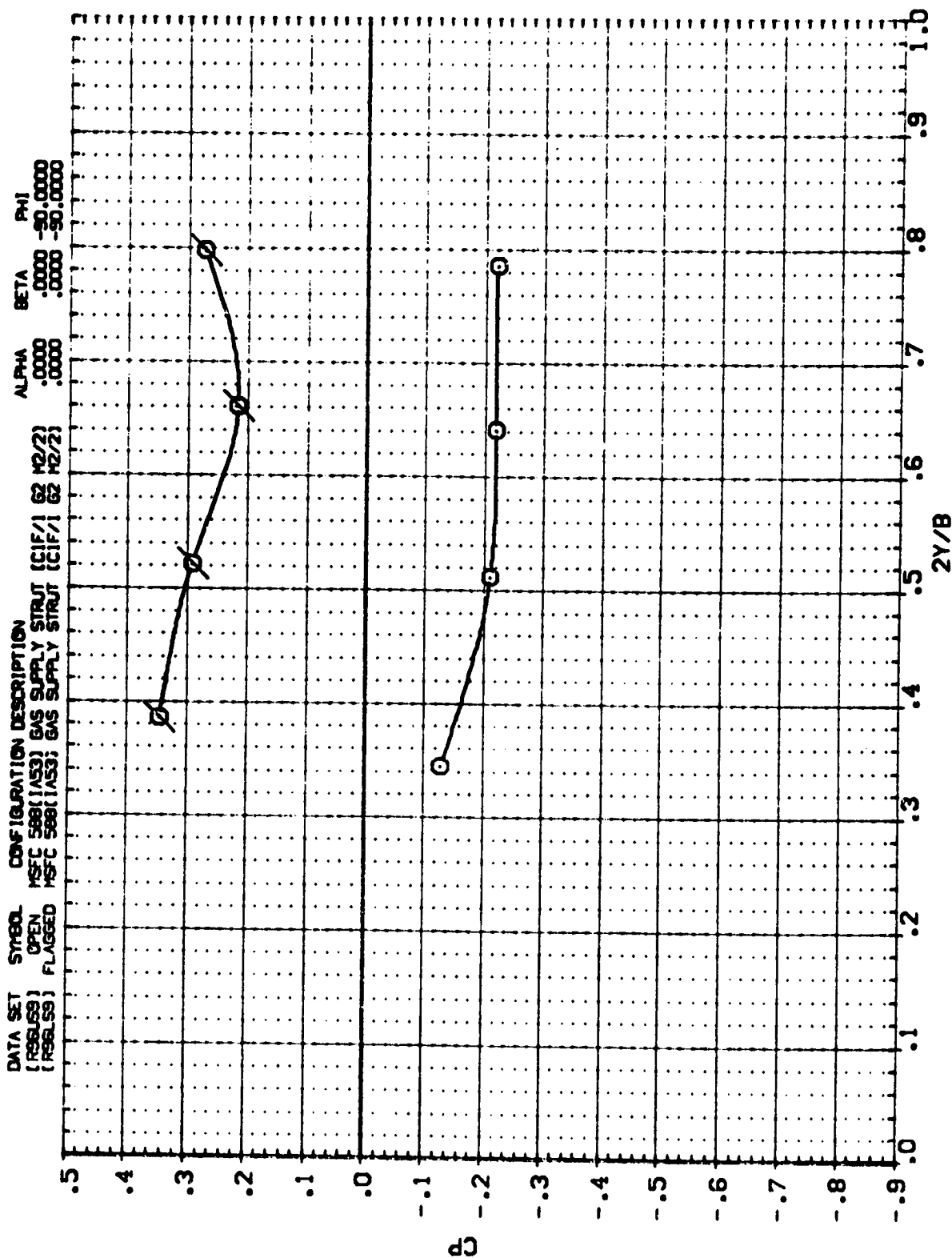
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.452



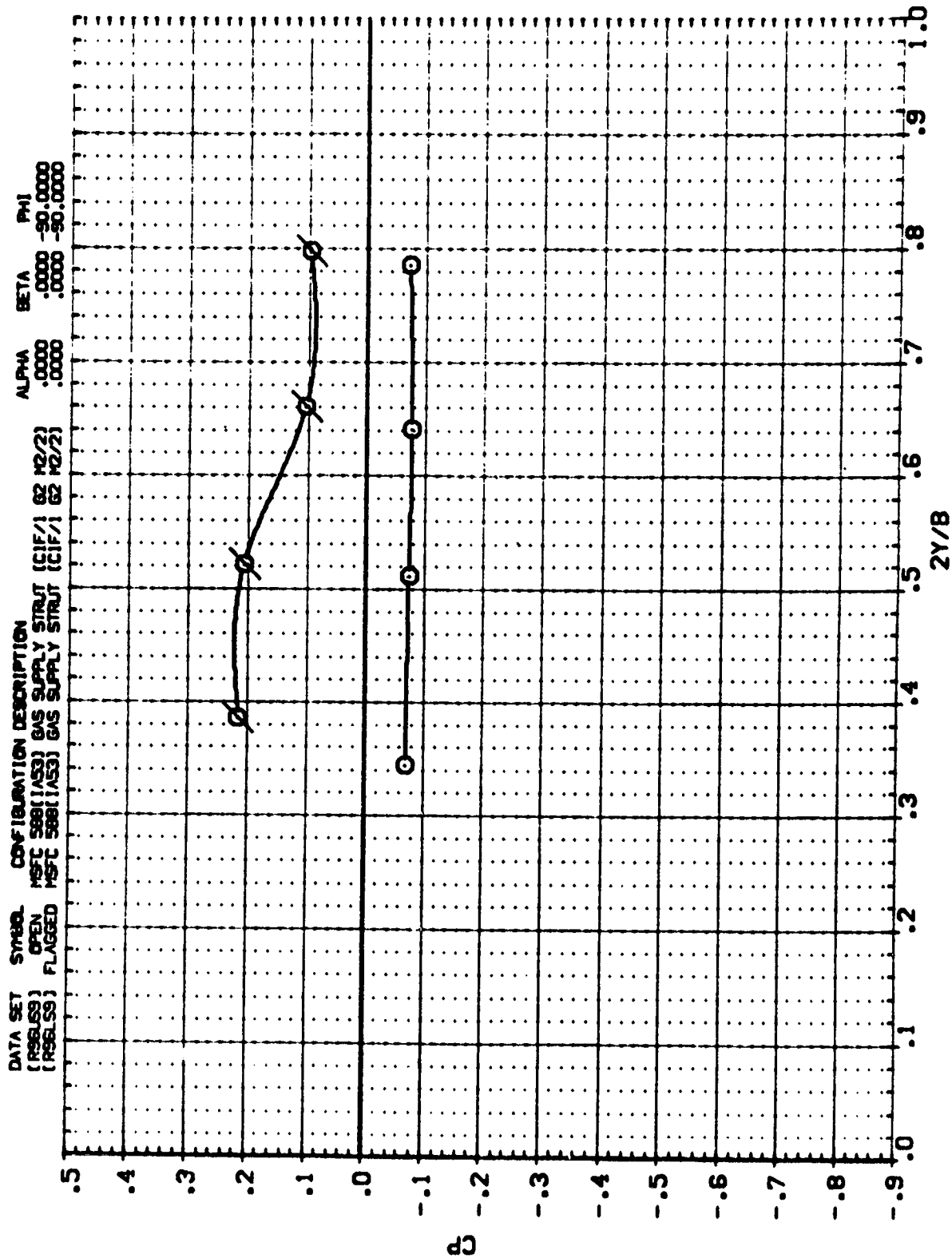
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 1.954



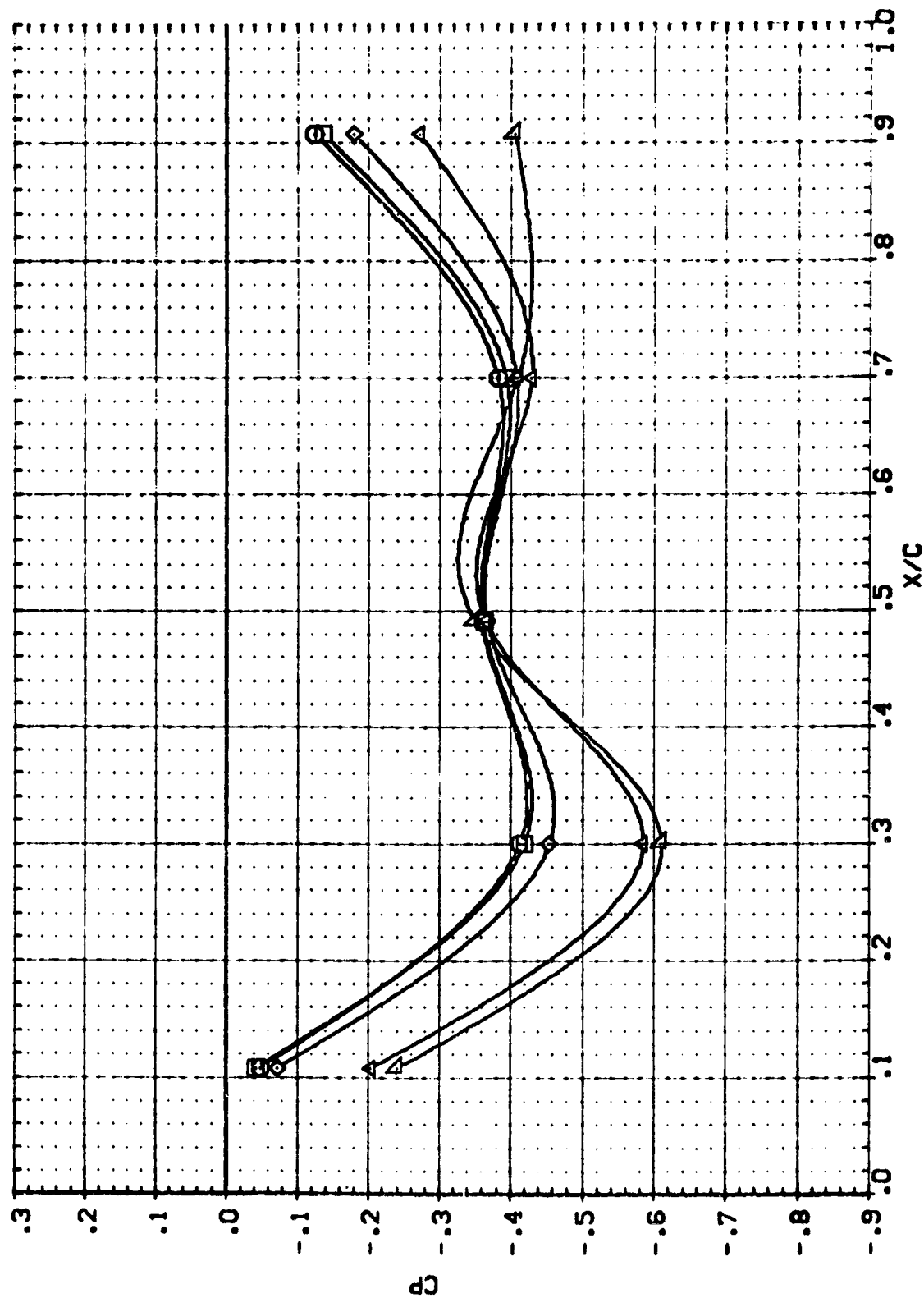
PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

SYMBOL X/C ALPHA MACH
 O .490 .000 2.950



PRESSURE DISTRIBUTION COMPARISON OF UPPER AND LOWER WING - SEMISPAN

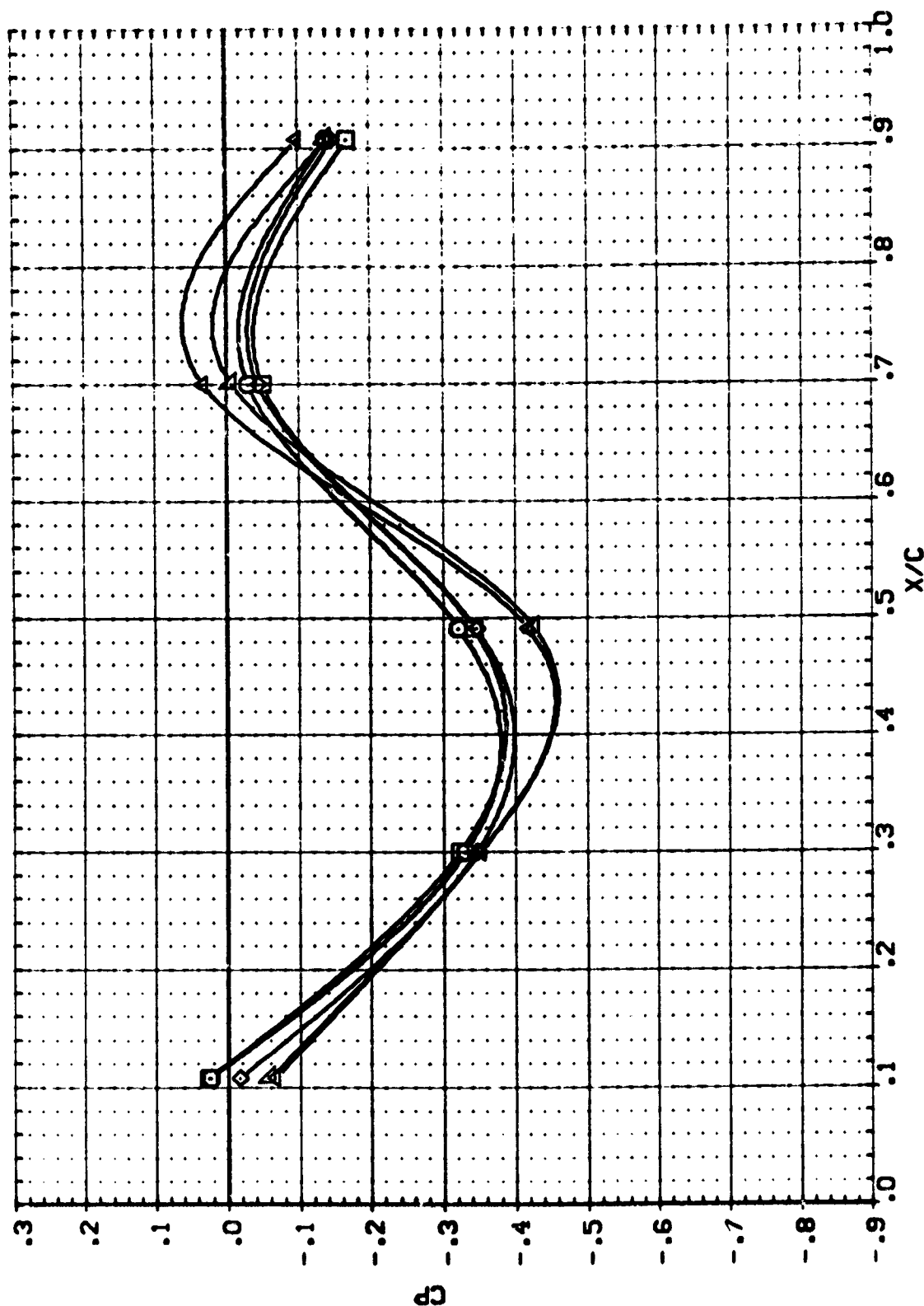
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56AU1]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/1)	.000	.000	.000
[R56AU2]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/2)	.000	.000	.000
[R56AU3]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/1)	.000	.000	.000
[R56AU4]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000
[R56AU5]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = .905 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A1]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/1)	.000	.000	.000
[R56A2]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/2)	.000	.000	.000
[R56A3]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	-90.000
[R56A4]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	-90.000

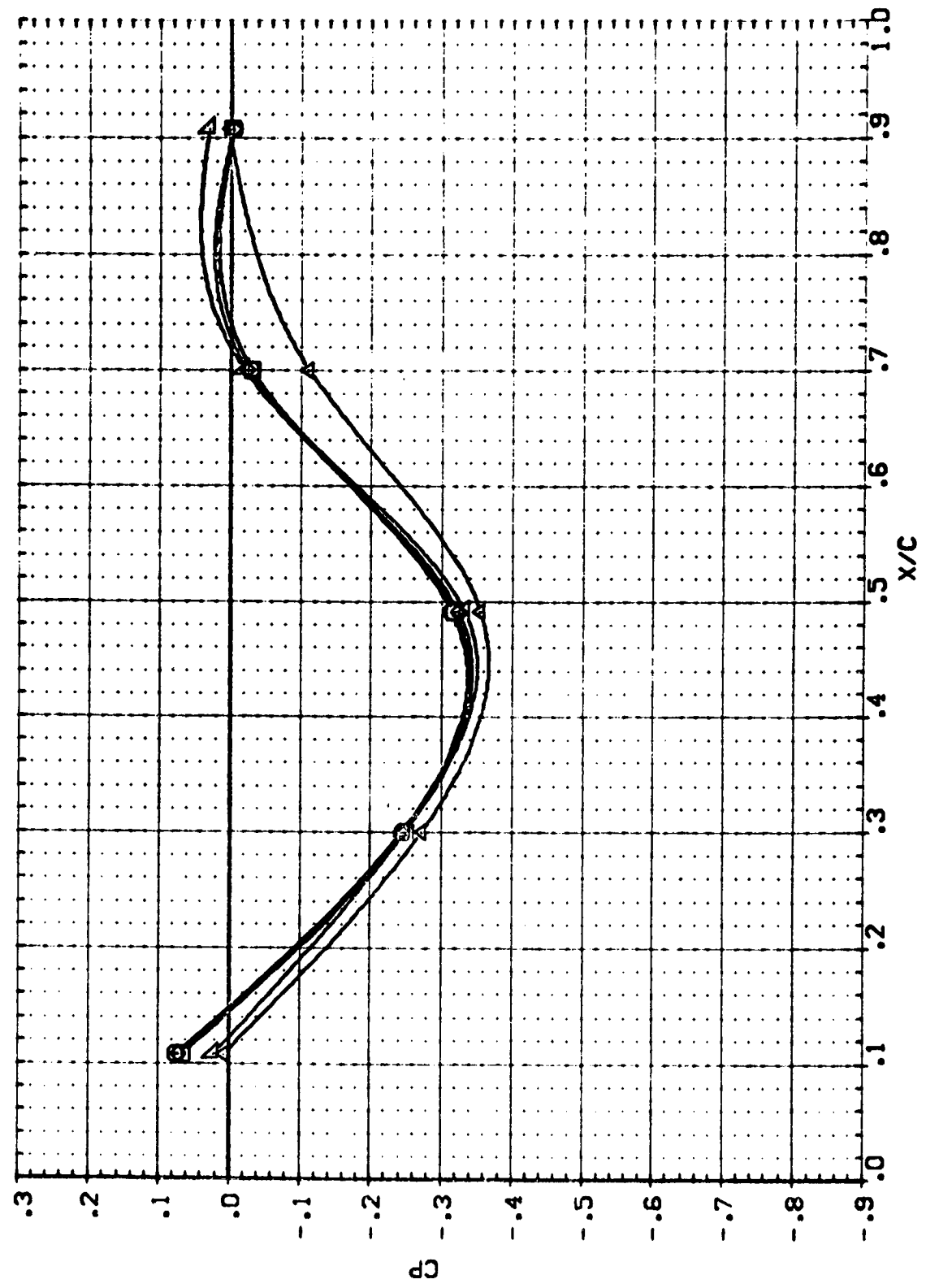


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 1.197 ALPHA = .000 2Y/B = .511

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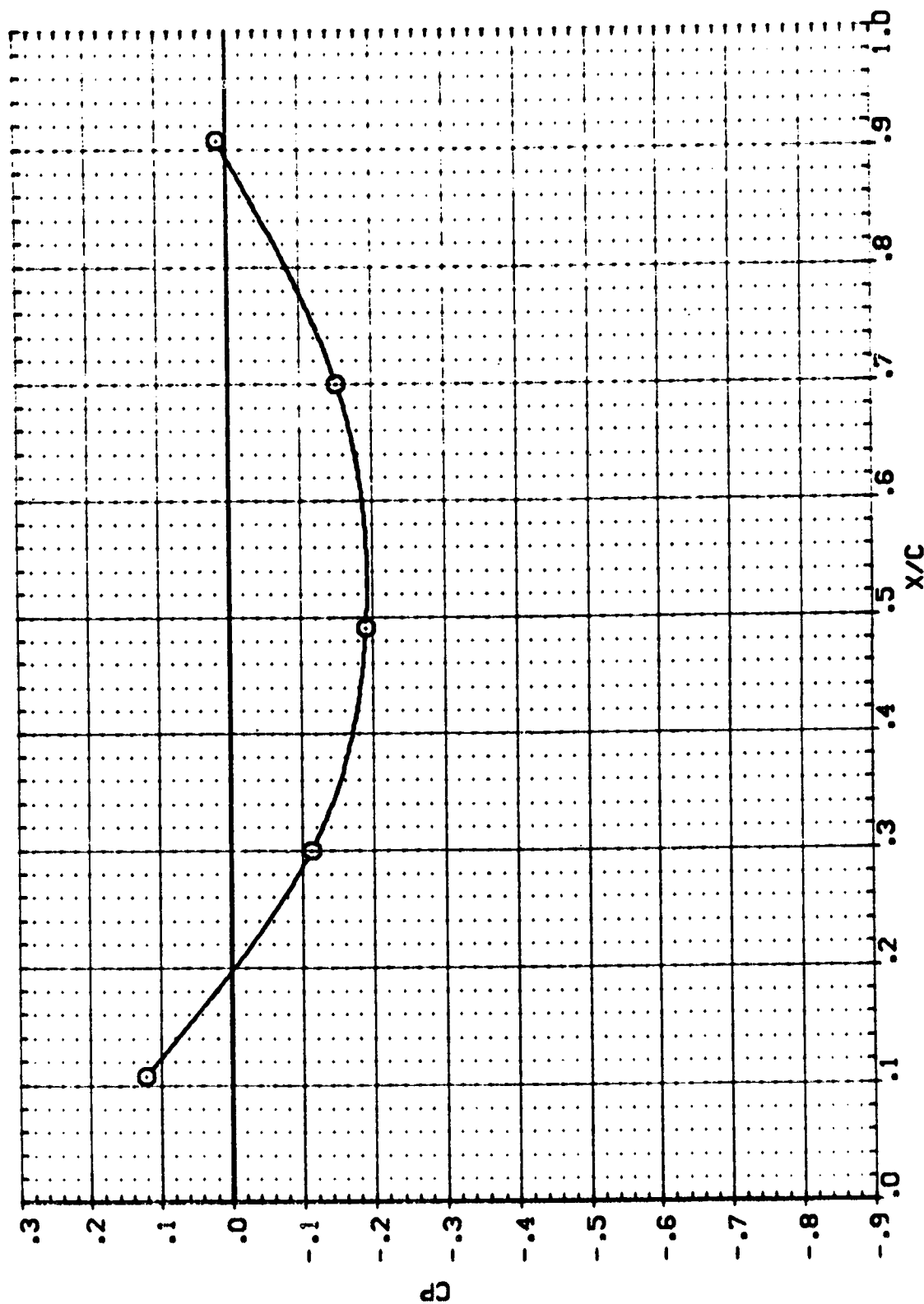
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R564U1]	□	HSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M1/1)	.000	.000	.000
[R564U2]	△	HSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M1/2)	.000	.000	.000
[R564U3]	×	HSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M2/1)	.000	.000	.000
[R564U4]	◇	HSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000
[R564U5]			.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT. UPPER WING

MACH = 1.456 ALPHA = .000 2Y/B = .511

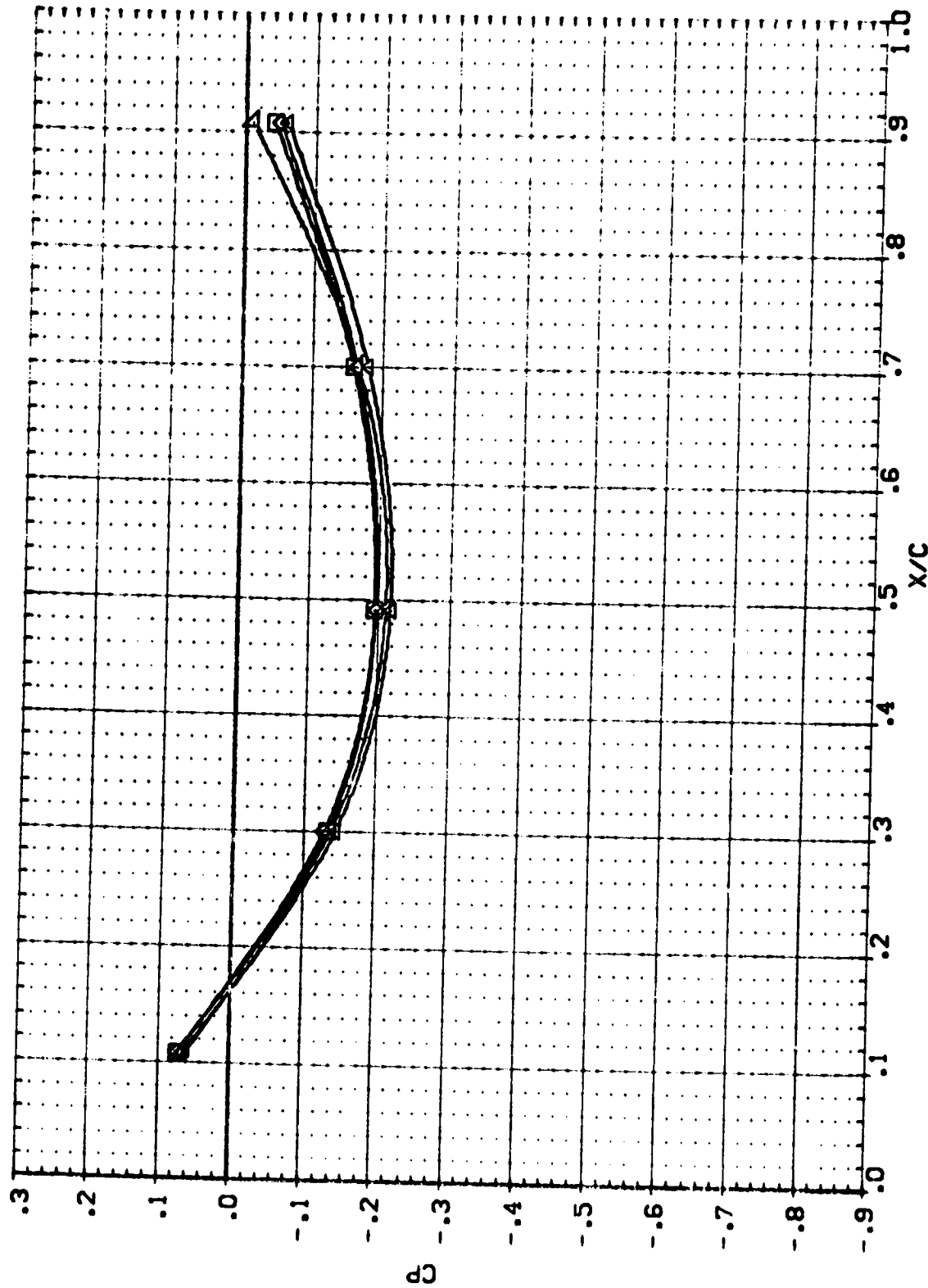
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A11]	MSC 500(1A53) GAS SUPPLY STRUT (C1F/1) M1/1)	.000	.000	.000
[R56A12]	MSC 500(1A53) GAS SUPPLY STRUT (C1F/1) M1/2)	.000	.000	.000
[R56A13]	MSC 500(1A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	-90.000
[R56A14]	MSC 500(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	-90.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

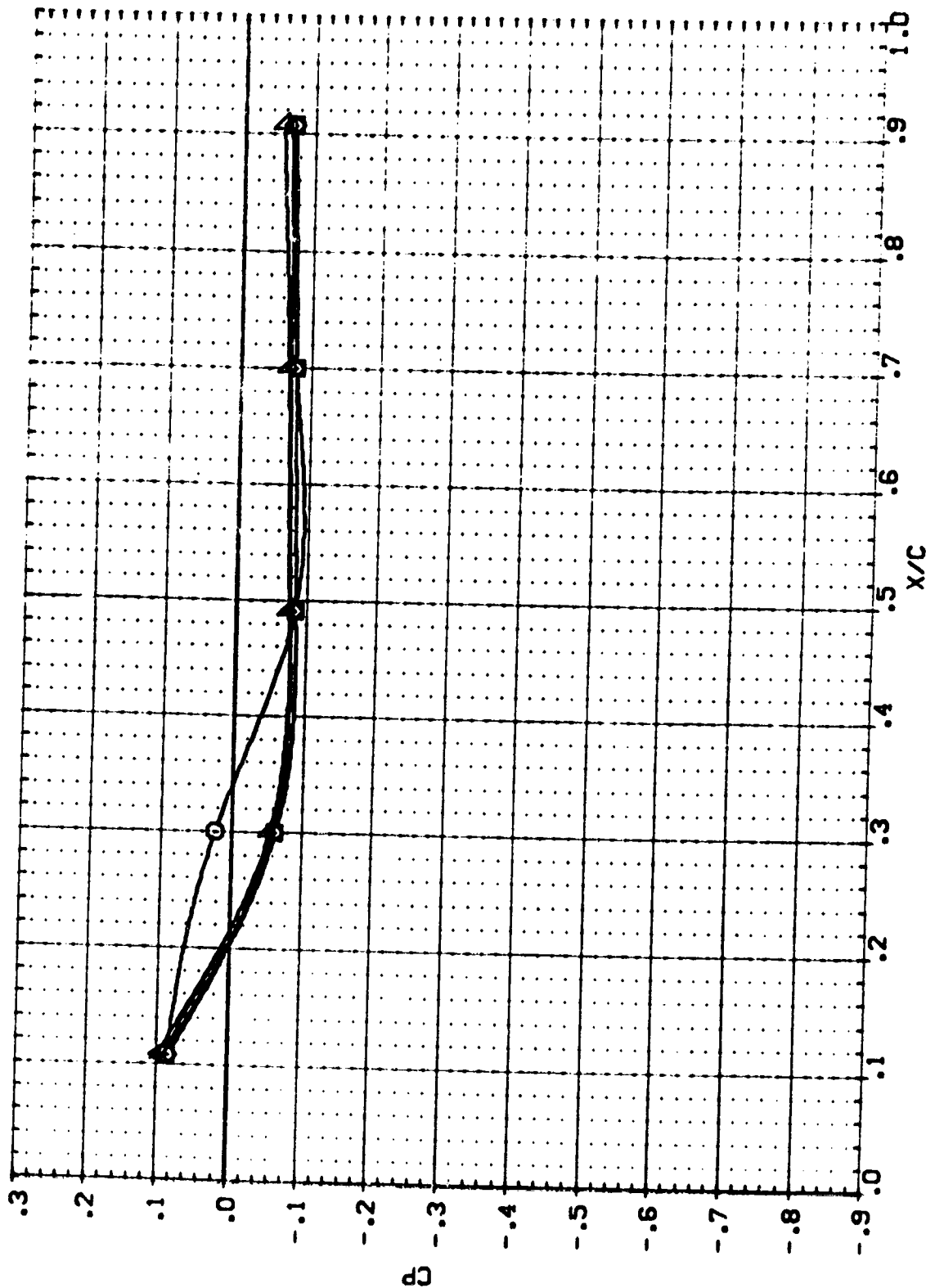
MACH = 1.898 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A1]	MSFC 508(IAS3) GAS SUPPLY STRUT (CIF/1) M1/1	.000	.000	.000
[R56A2]	MSFC 508(IAS3) GAS SUPPLY STRUT (CIF/1) M1/2	.000	.000	.000
[R56A3]	MSFC 508(IAS3) GAS SUPPLY STRUT (CIF/1) M2/1	.000	.000	.000
[R56A4]	MSFC 508(IAS3) GAS SUPPLY STRUT (CIF/1) M2/2	.000	.000	.000
[R56A5]	MSFC 508(IAS3) GAS SUPPLY STRUT (CIF/1) M2/2	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 1.961 ALPHA = .000 2Y/B = .511

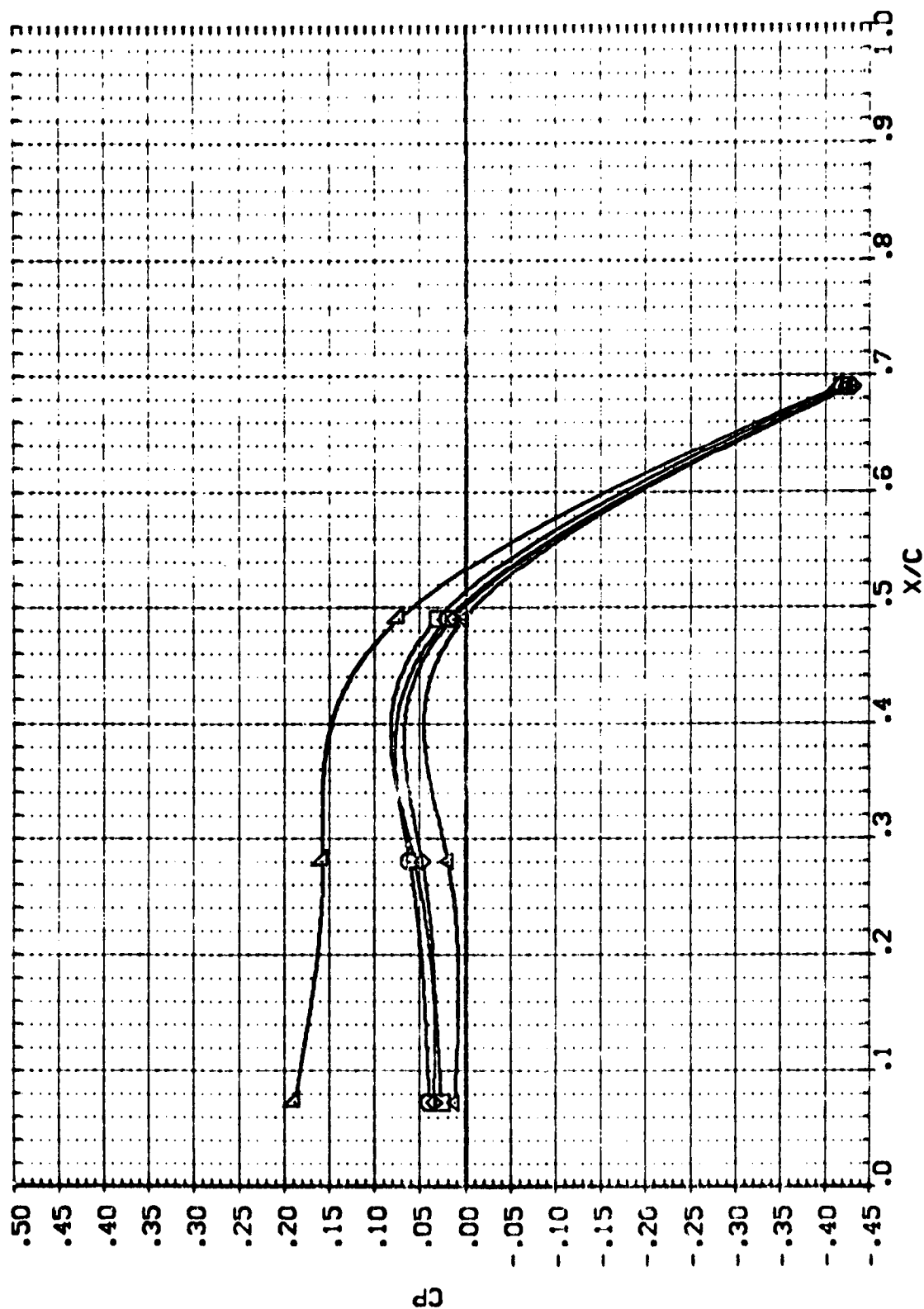
[illegible][illegible]

STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 2.990 ALPHA = .000 2Y/B = .511

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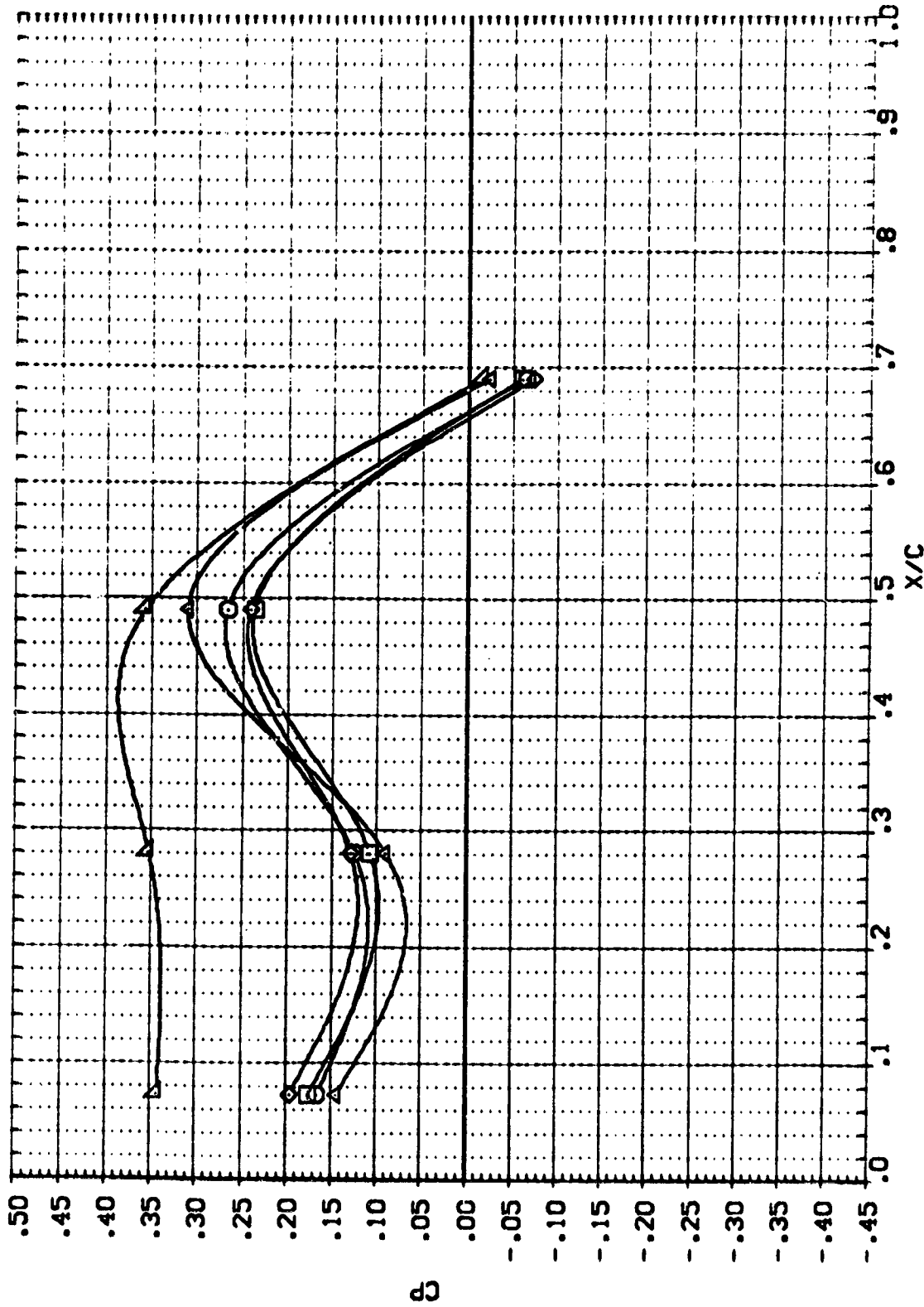
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A1.1]	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[R56A1.2]	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M1/1)	.000	.000	.000
[R56A1.3]	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M1/2)	.000	.000	.000
[R56A1.4]	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M2/1)	.000	.000	.000
[R56A1.5]	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M2/2)	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = .905 ALPHA = .000 2Y/B = .521

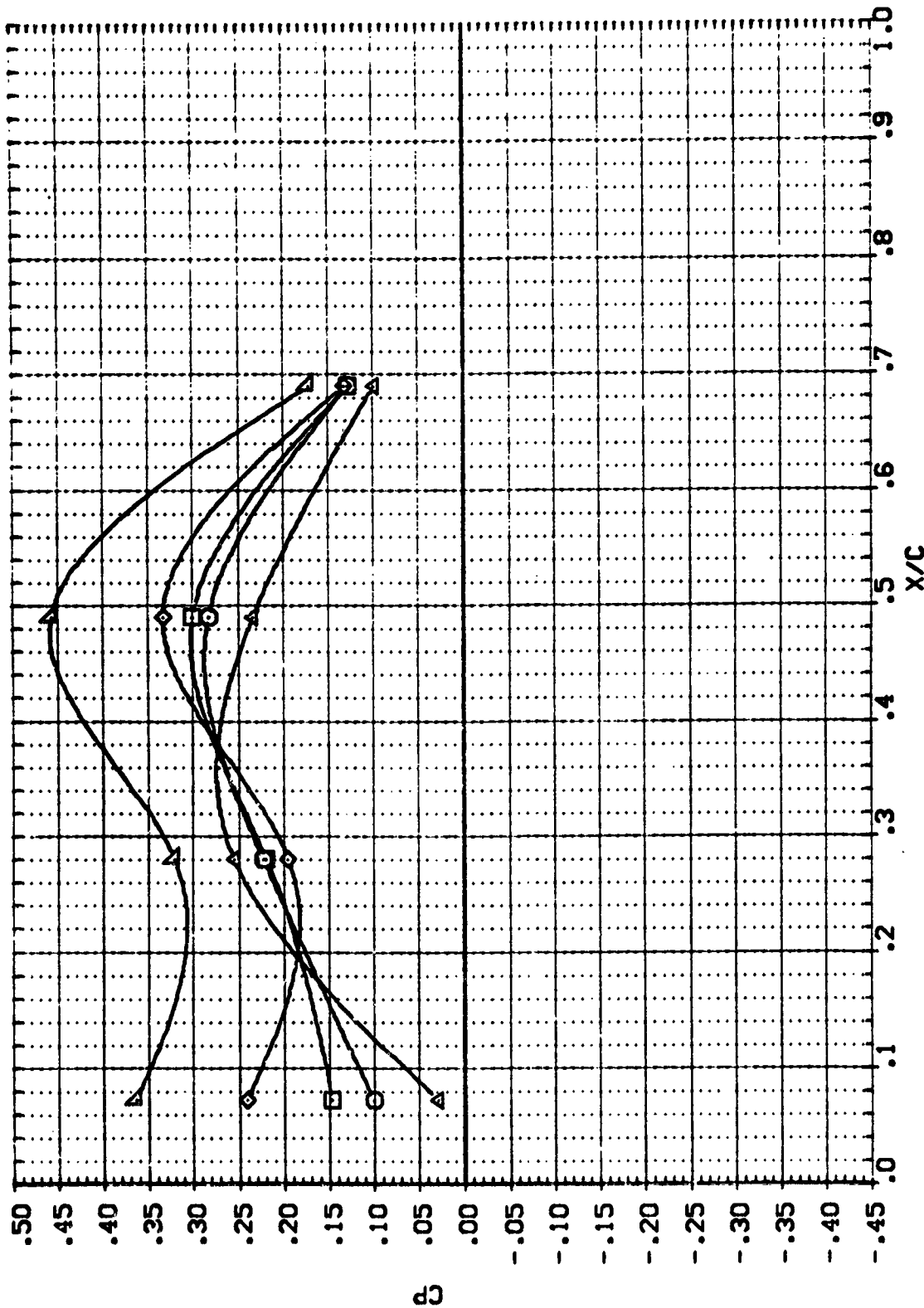
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[RSBAL1]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/1	.000	.000	.000
[RSBAL2]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/2	.000	.000	.000
[RSBAL3]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/1	.000	.000	.000
[RSBAL4]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2	.000	.000	.000
[RSBAL5]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = 1.197 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A1.1]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/1)	.000	.000	.000
[R56A1.2]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/2)	.000	.000	.000
[R56A1.3]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000
[R56A1.4]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000
[R56A1.5]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000

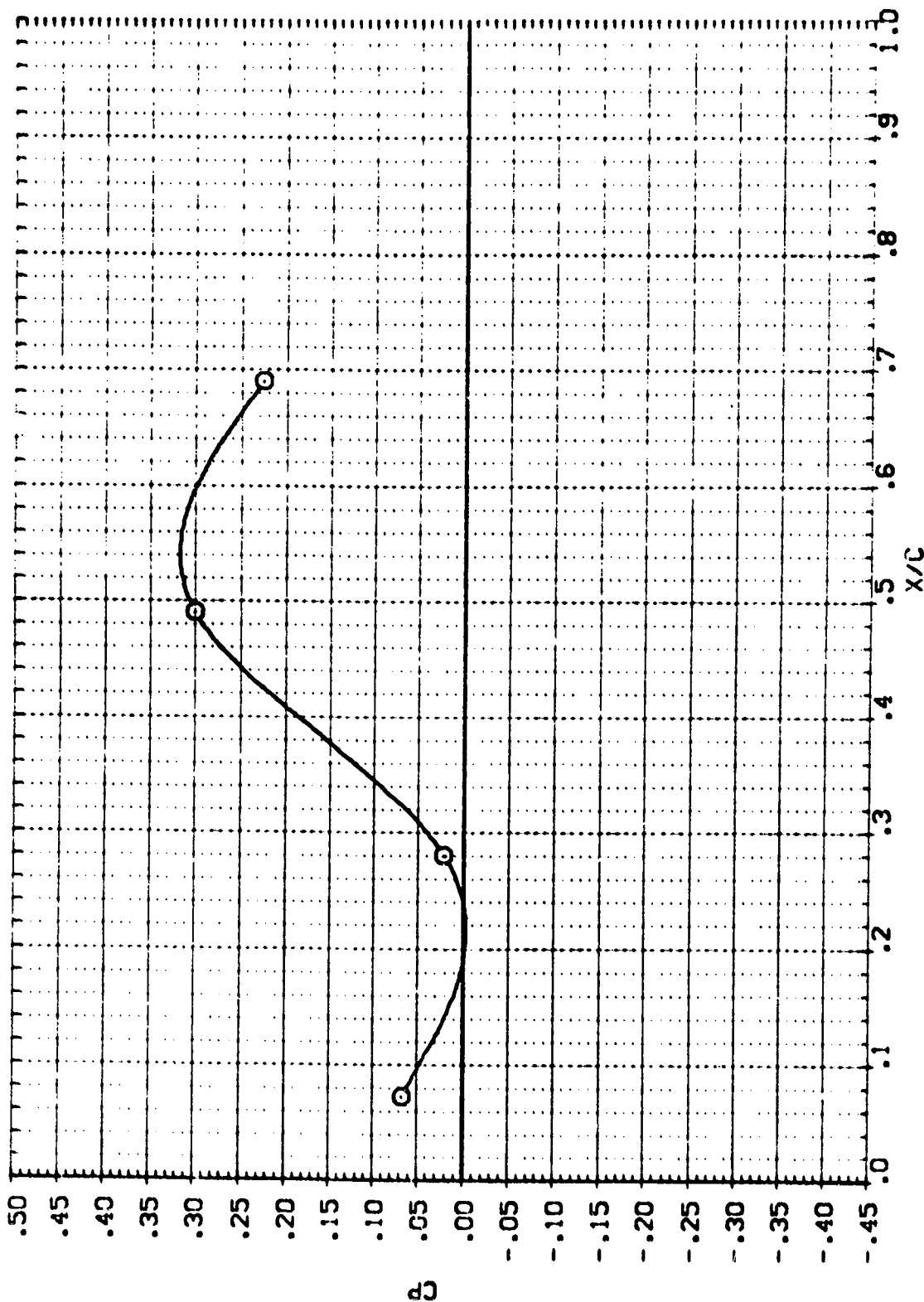


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = 1.456 ALPHA = .000 2Y/B = .521

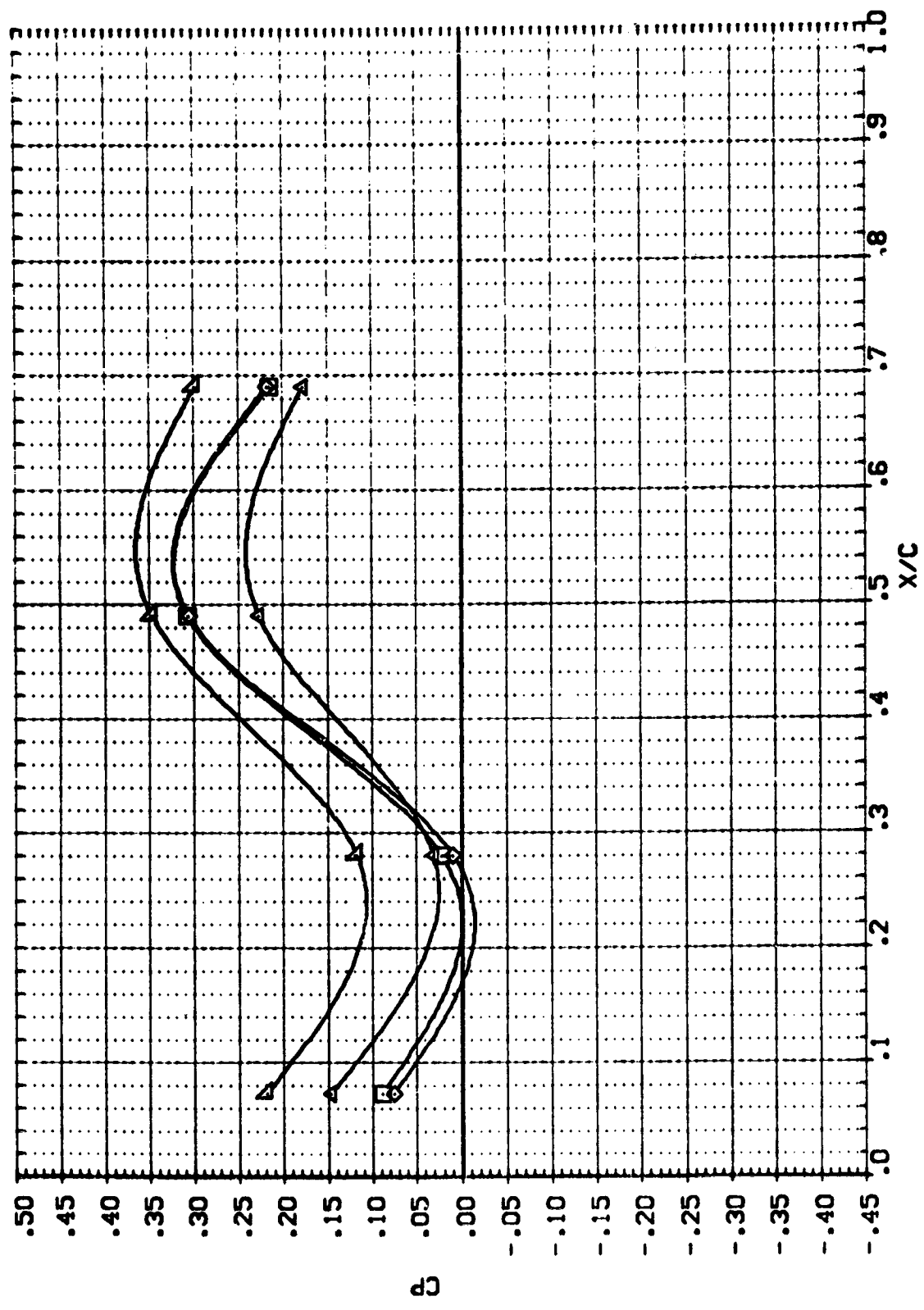
DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PH1

R56AL1	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
R56AL2	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M1/1)	.000	.000	.000
R56AL3	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M1/2)	.000	.000	.000
R56AL4	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M2/1)	.000	.000	.000
R56AL5	MSFC 5881A53) GAS SUPPLY STRUT (C1F/1 M2/2)	.000	.000	.000



MAC = 1.898 ALPHA = .000 2Y/B = .521

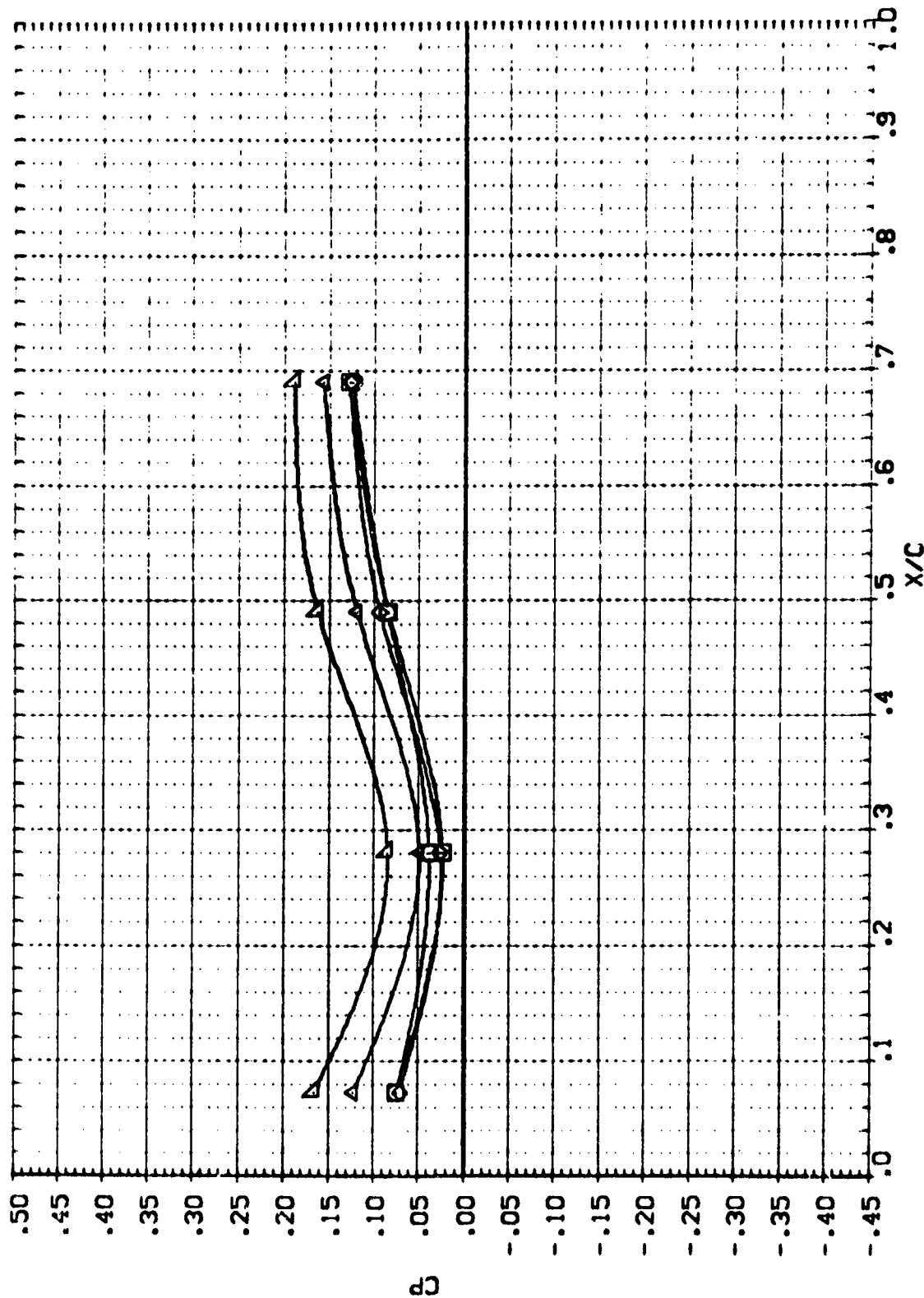
DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[RS6A1.1]	□	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[RS6A1.2]	◇	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[RS6A1.3]	△	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[RS6A1.4]	▽	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[RS6A1.5]	◇	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
PS6AL1	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
PS6AL2	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M1/1	.000	.000	.000
PS6AL3	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M1/2	.000	.000	.000
PS6AL4	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M2/1	.000	.000	-90.000
PS6AL5	MSFC 588(IAS3) GAS SUPPLY STRUT (C1F/1) M2/2	.000	.000	-90.000

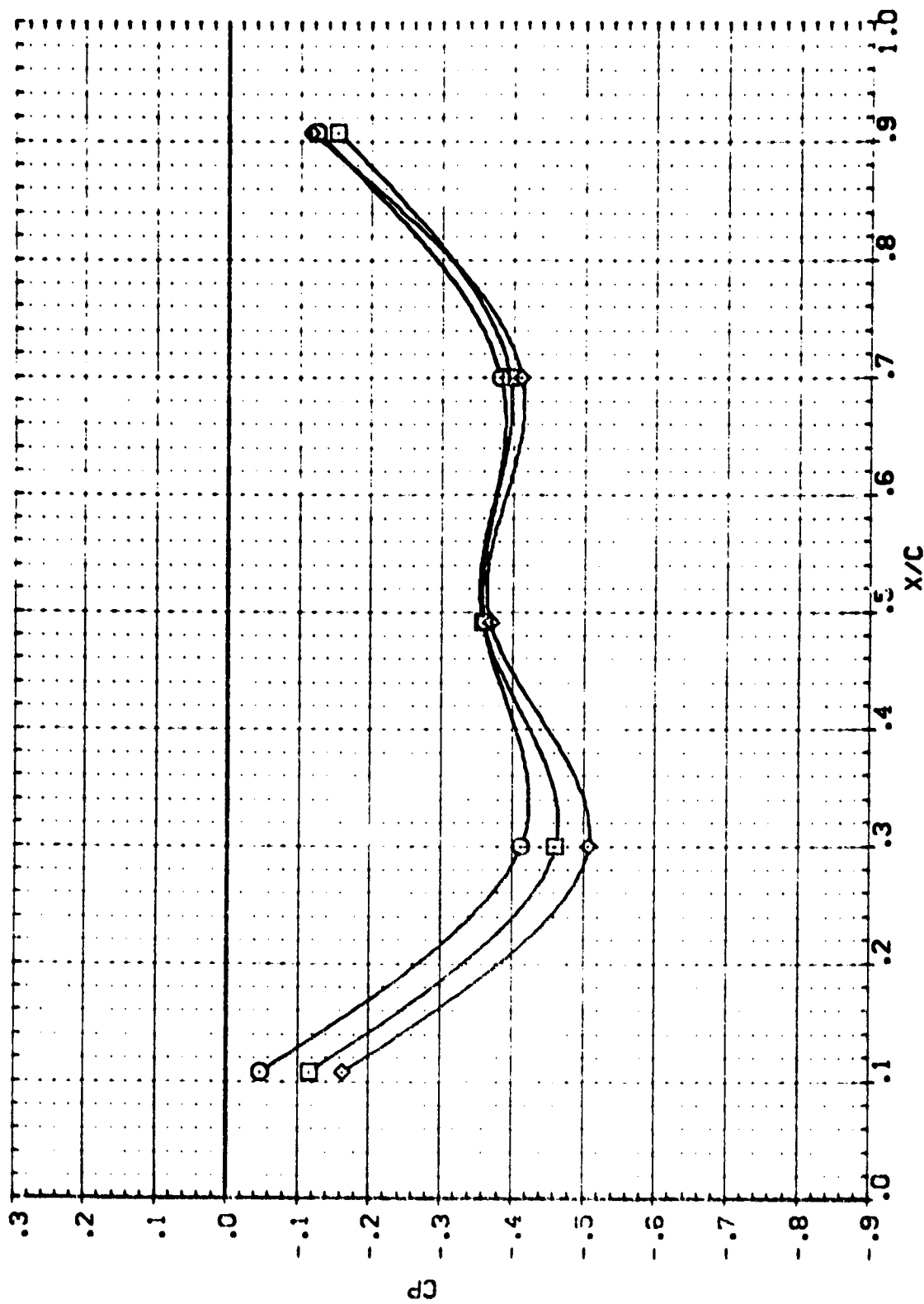


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

$\gamma_{AC} = 2.990$ $\alpha = 0.000$ $2Y/B = 0.521$

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [R56A1] MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 01)
 [R56A2] MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 02)
 [R56A7] MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 03)

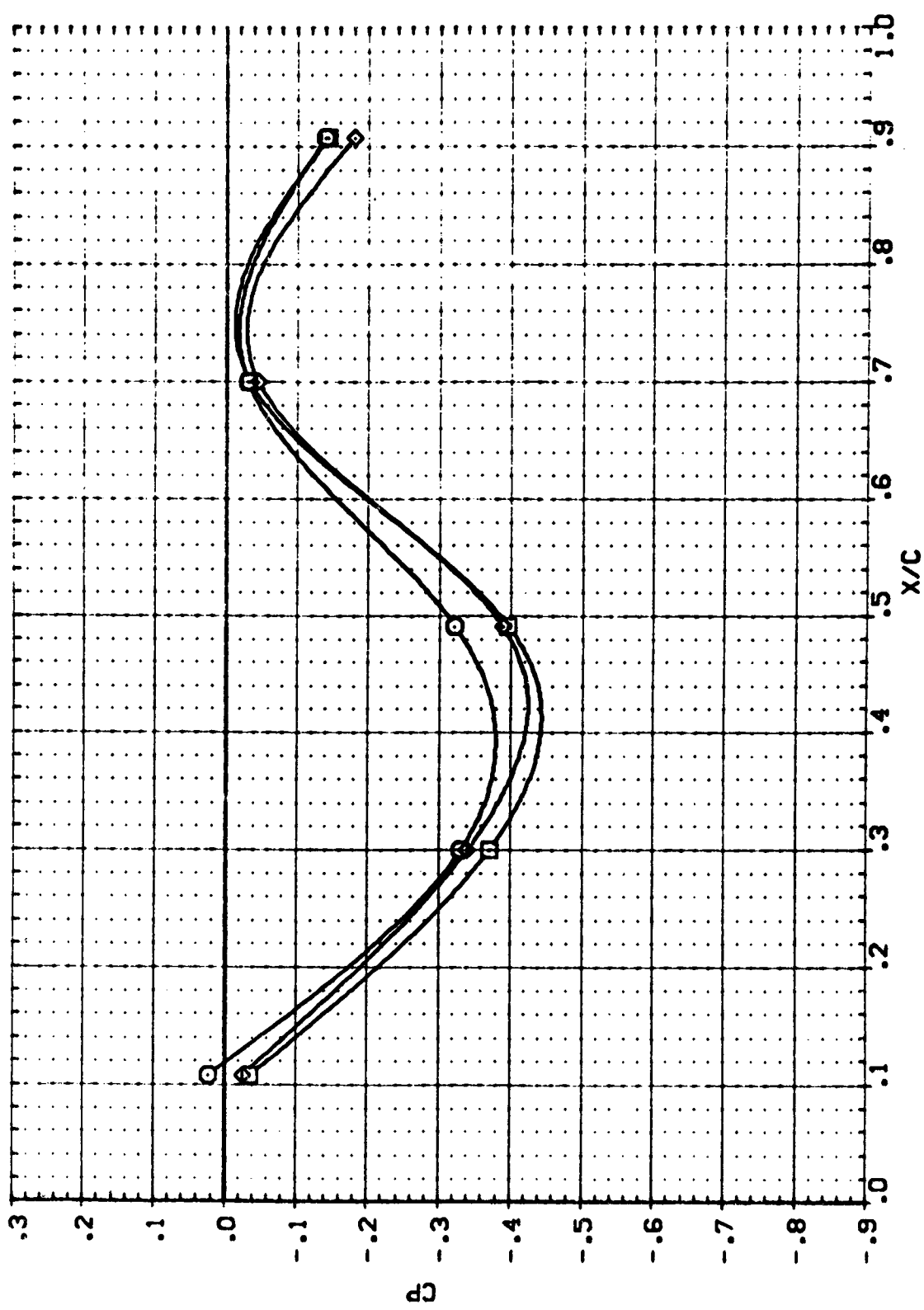
ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = .905 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R64U1]	MSFC 5881A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R64U6]	MSFC 5881A53) GAS SUPPLY STRUT (CIF/1 61)	.000	.000	.000
[R64U7]	MSFC 5881A53) GAS SUPPLY STRUT (CIF/1 62)	.000	.000	.000



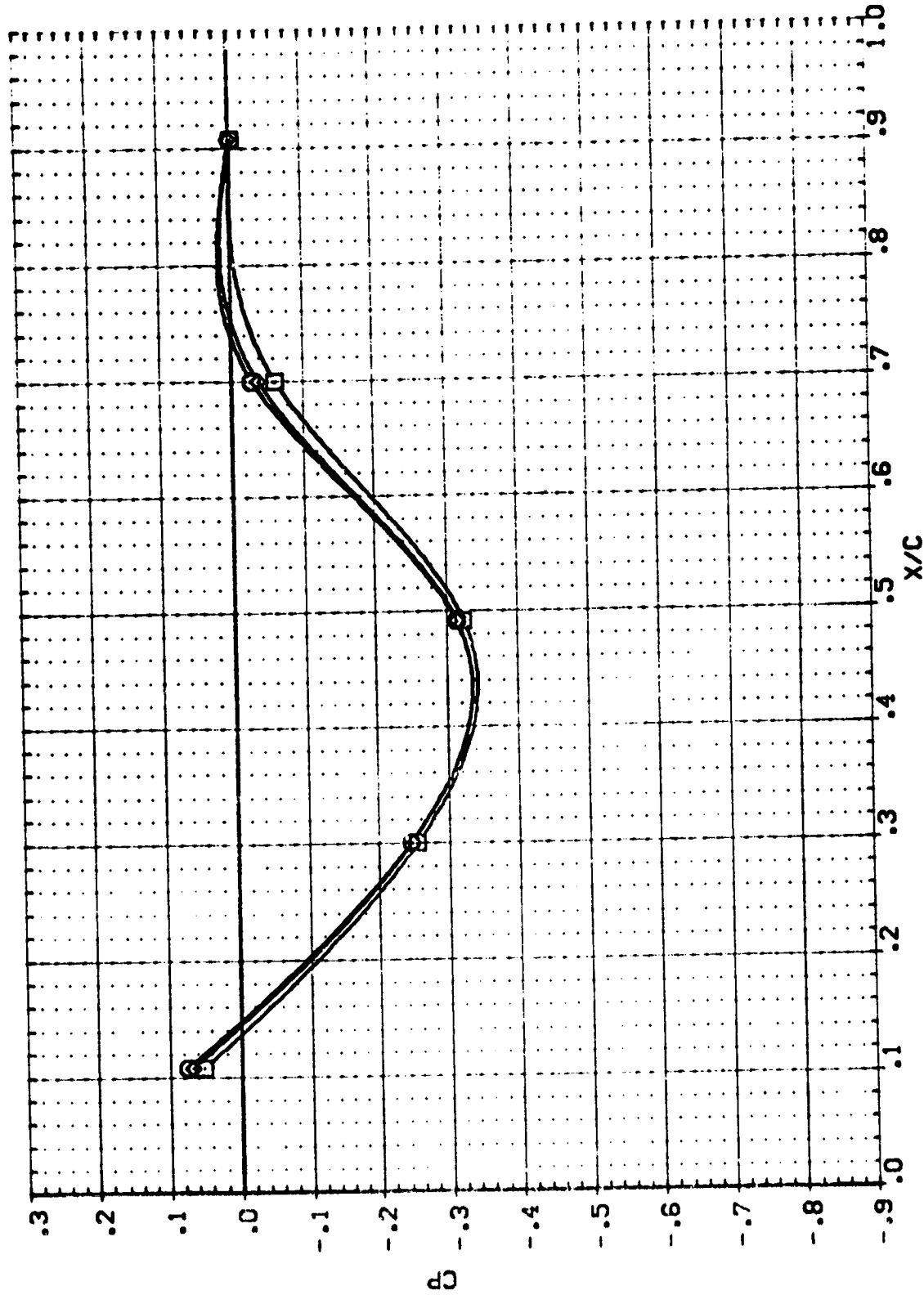
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 1.197 ALPHA = .000 2Y/B = .511



DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [R56AU1] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)
 [R56AU6] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1 81)
 [R56AU7] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000

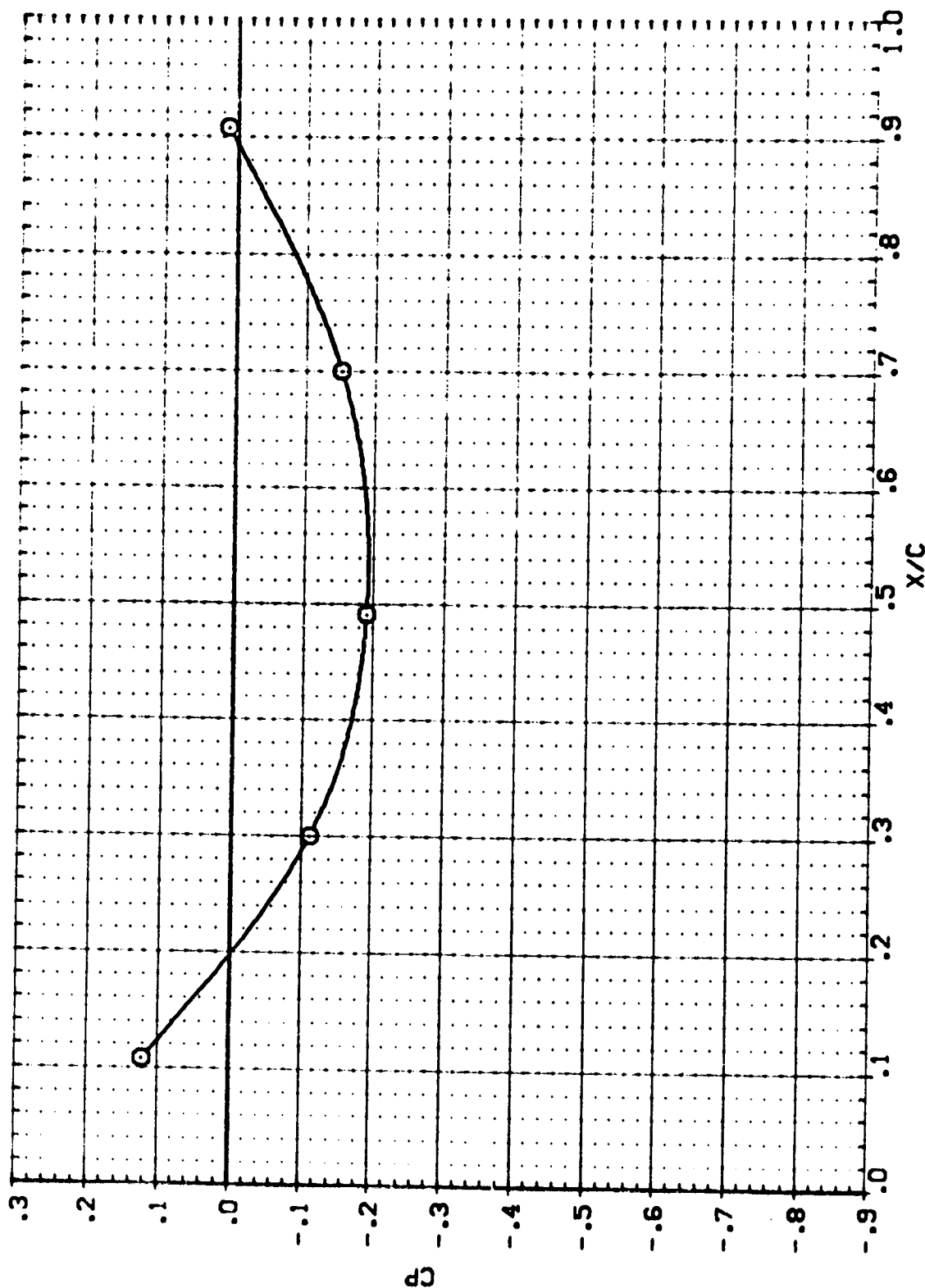


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 1.456 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [R55A11] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
 [R55A16] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)
 [R55A17] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000

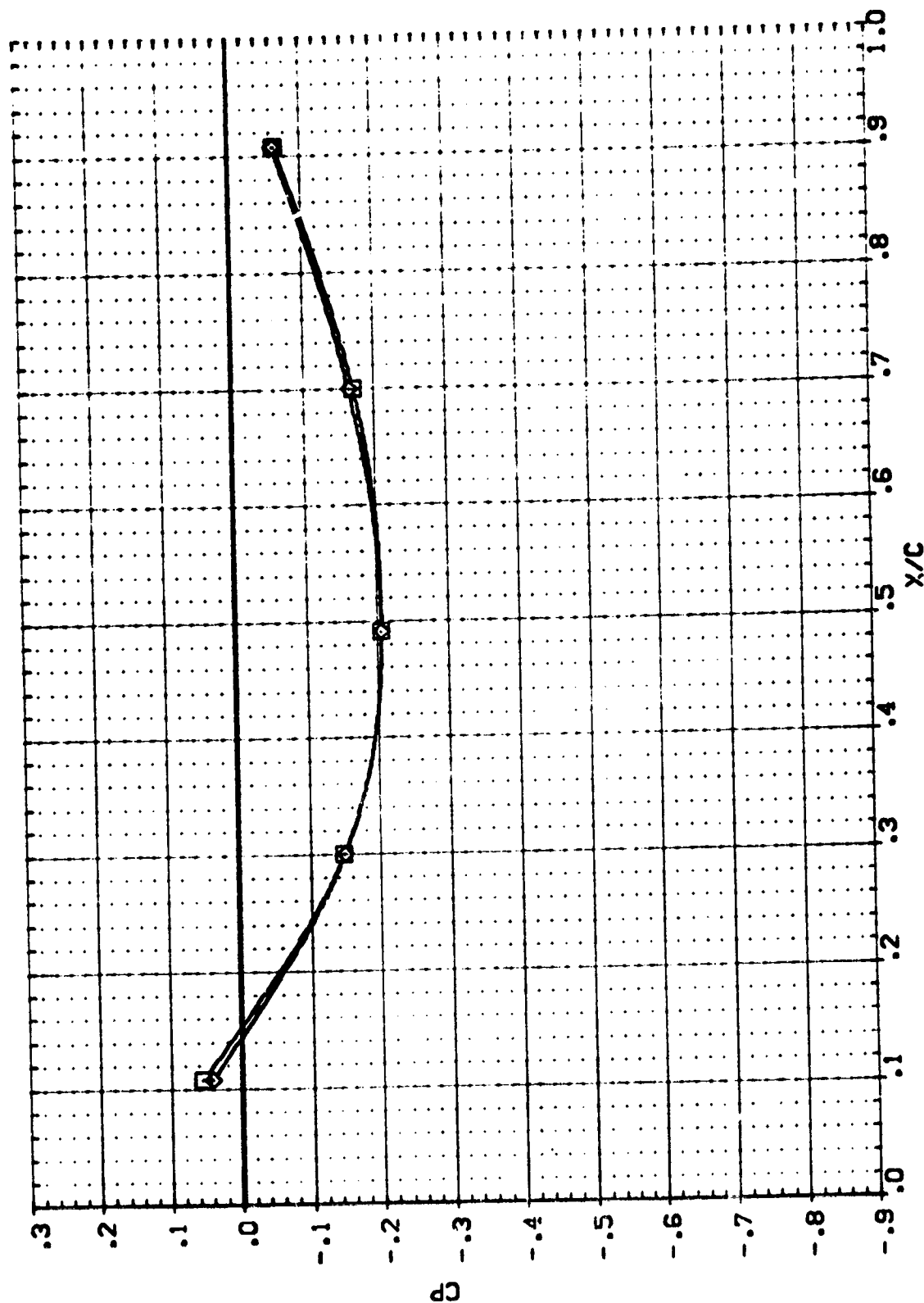


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 1.898 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

(R564U1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 013
 (R564U6) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 013
 (R564U7) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 023



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

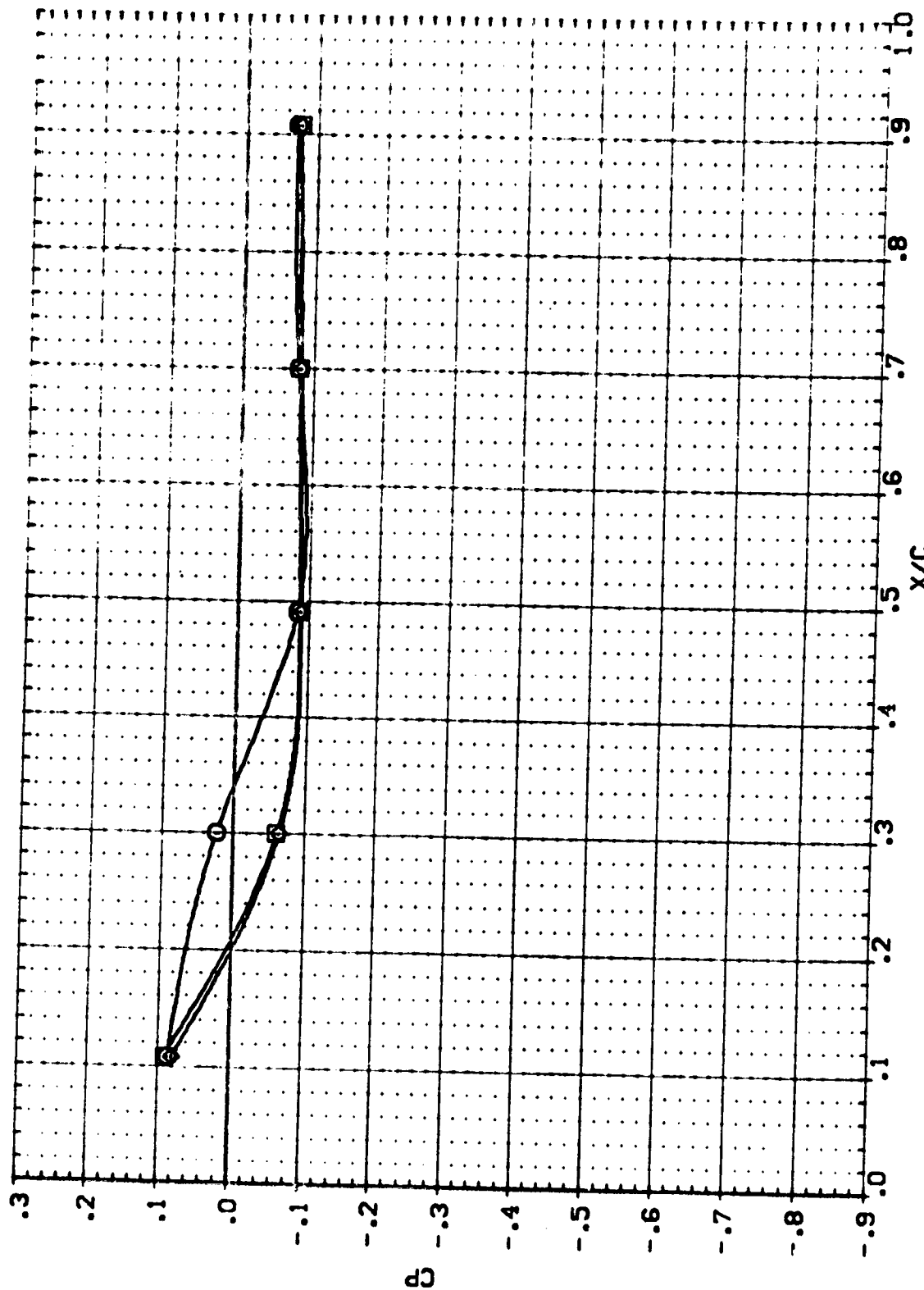
MACH = 1.959 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[REDAUT] 1
[REDAUT] 2
[REDAUT] 3

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 91)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 92)

ALPHA BETA PHI
.000 .000 .000
.000 .000 .000
.000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

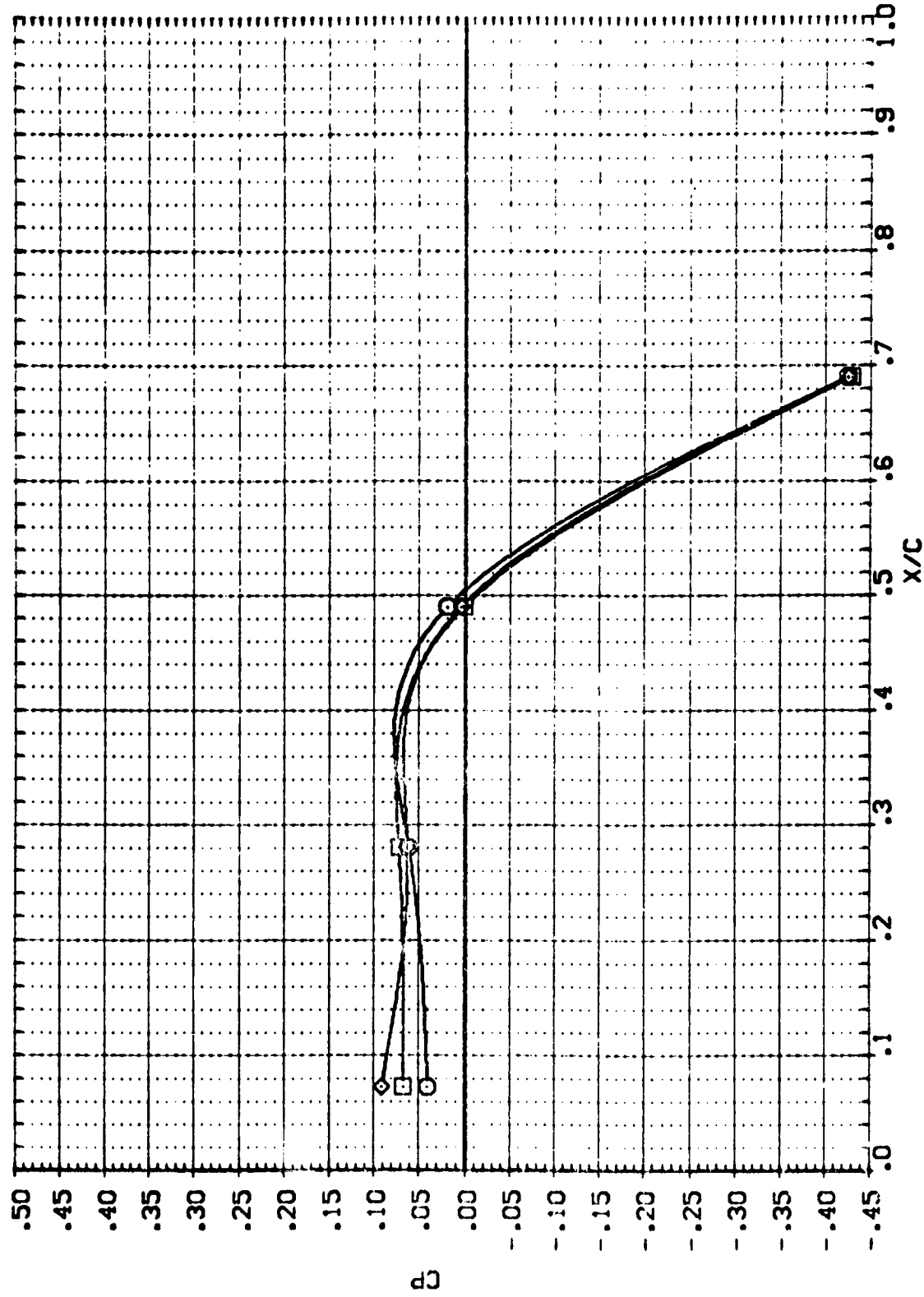
MACH = 2.990 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56AL1]
[R56AL6]
[R56AL7]

MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) G1
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) G1
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) G2

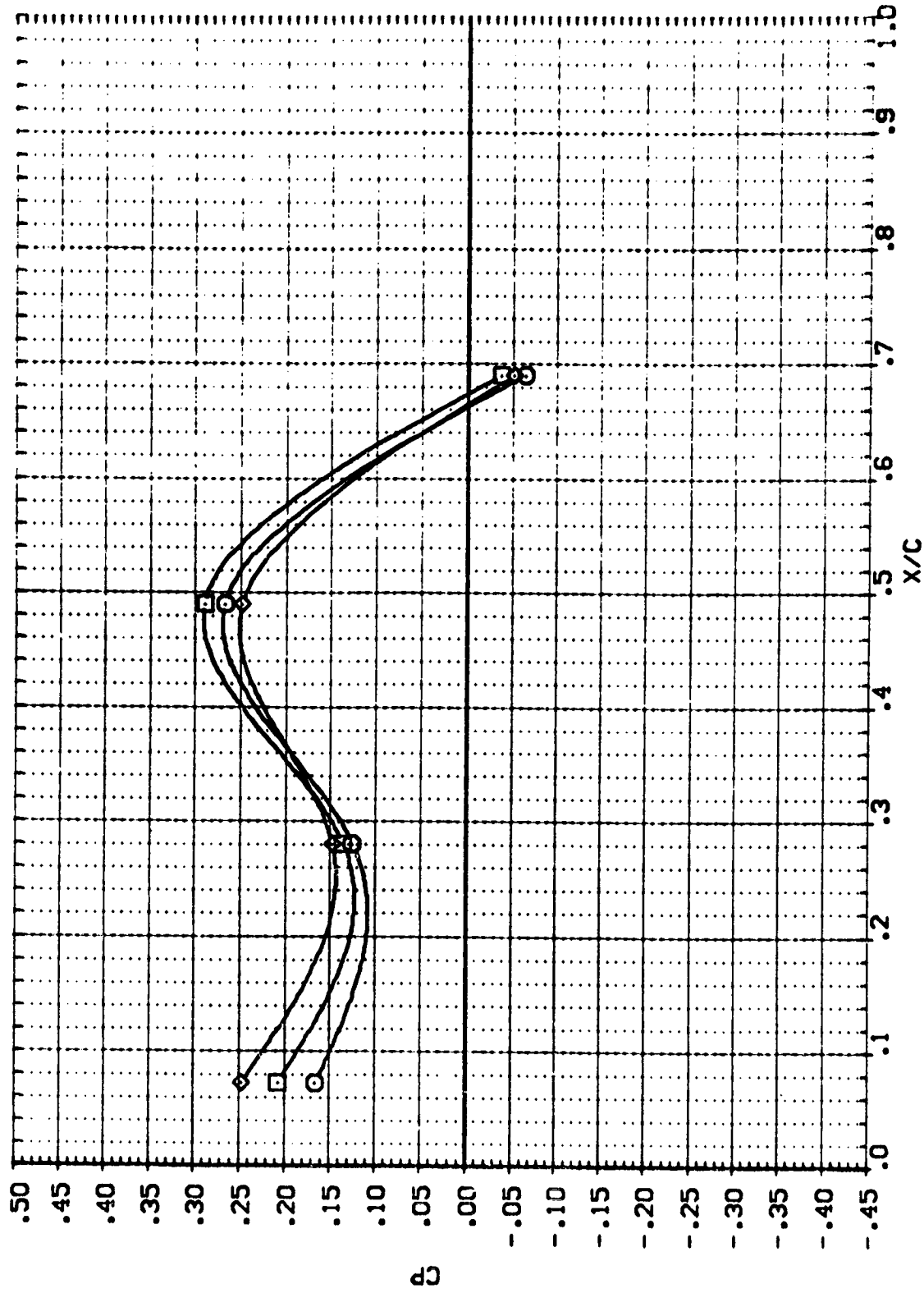
ALPHA BETA PHI
.000 .000 .000
.000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = .905 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(R564L1)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
(R564L6)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)	.000	.000	.000
(R564L7)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)	.000	.000	.000

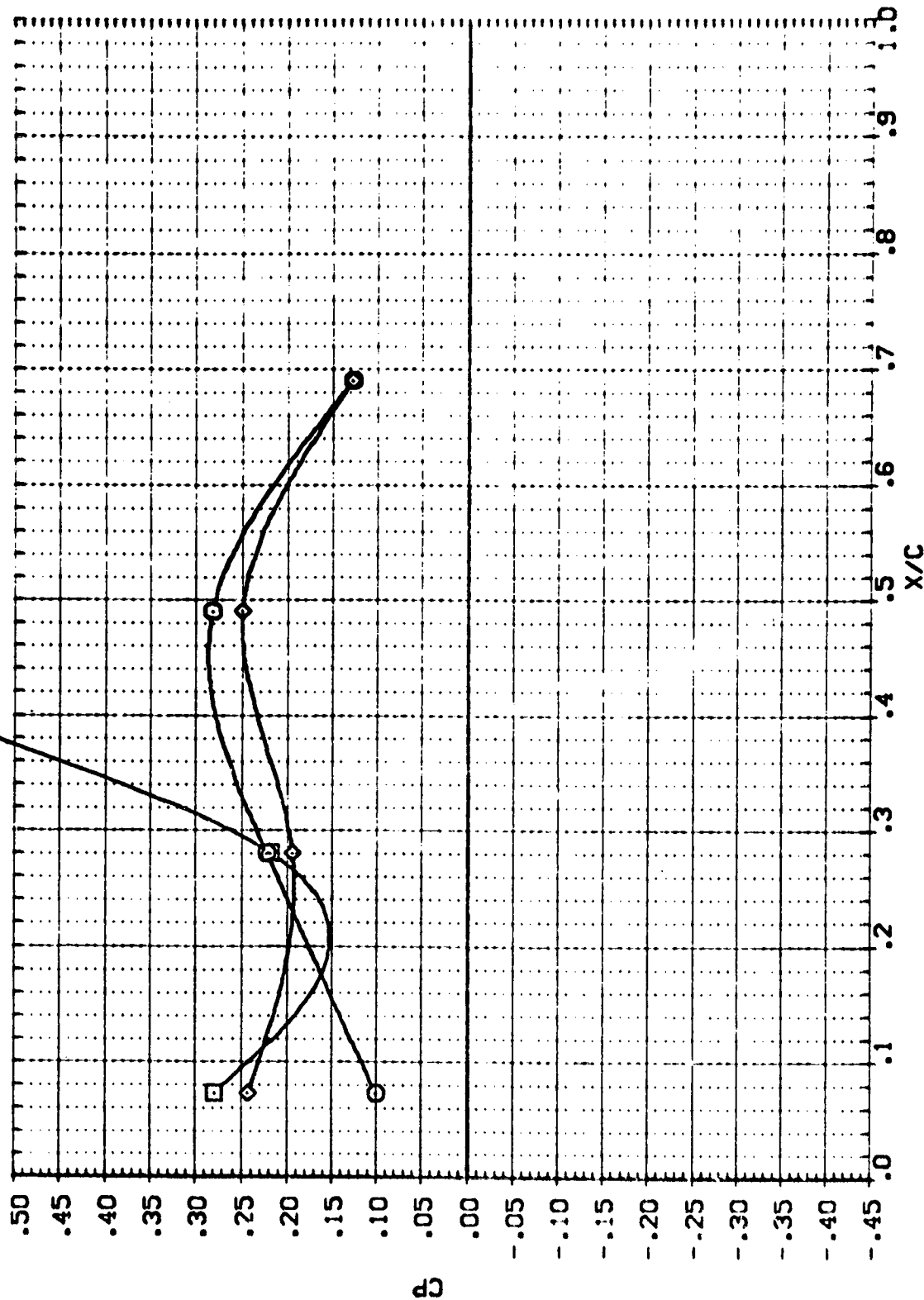


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.197 ALPHA = .000 2Y/B = .521



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A11]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R56A16]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)	.000	.000	.000
[R56A17]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)	.000	.000	.000



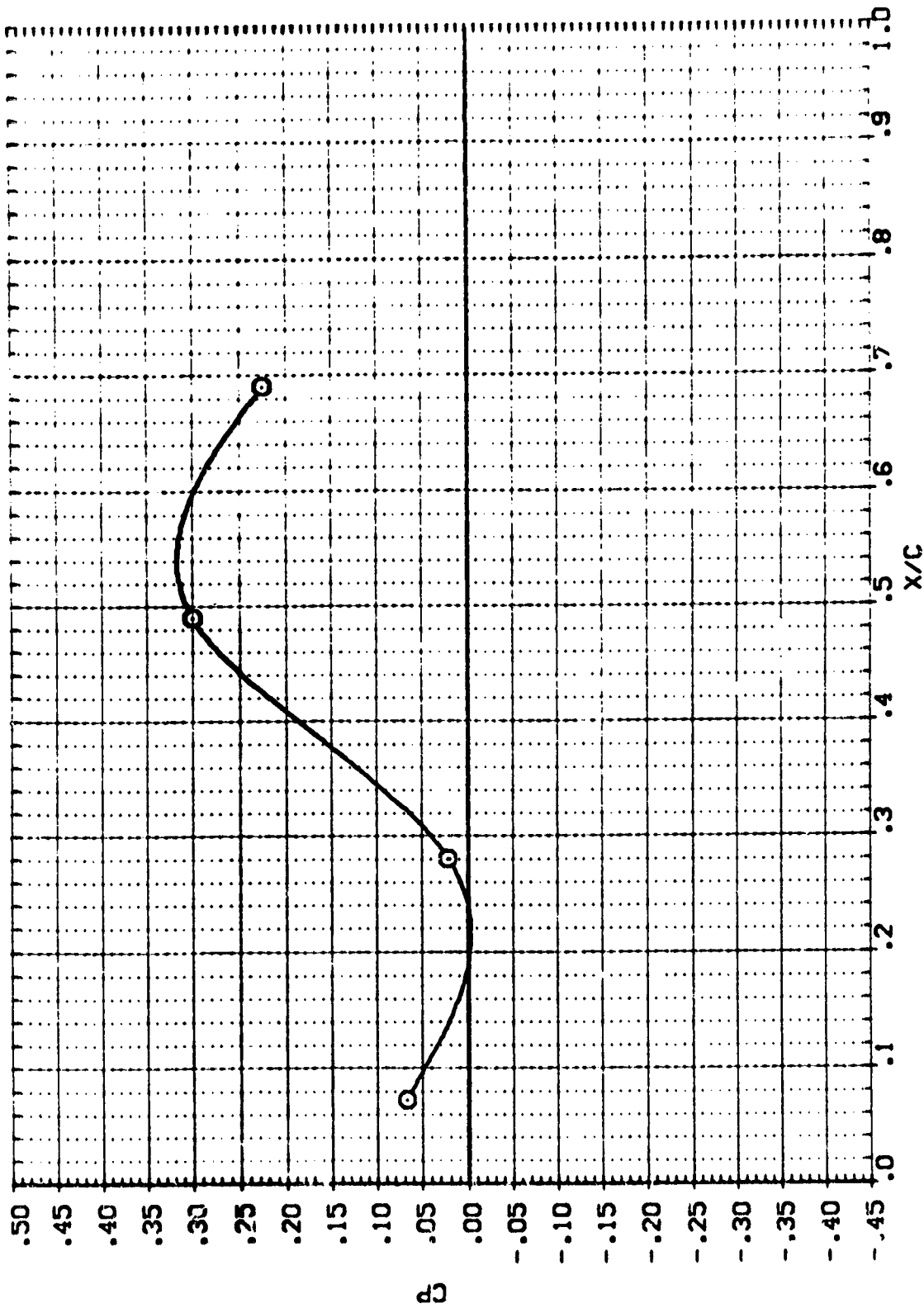
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.456 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56A11] NSFC 598(1A53) GAS SUPPLY STRUT (CIF/1)
 [R56A16] NSFC 598(1A53) GAS SUPPLY STRUT (CIF/1 61)
 [R56A17] NSFC 598(1A53) GAS SUPPLY STRUT (CIF/1 62)

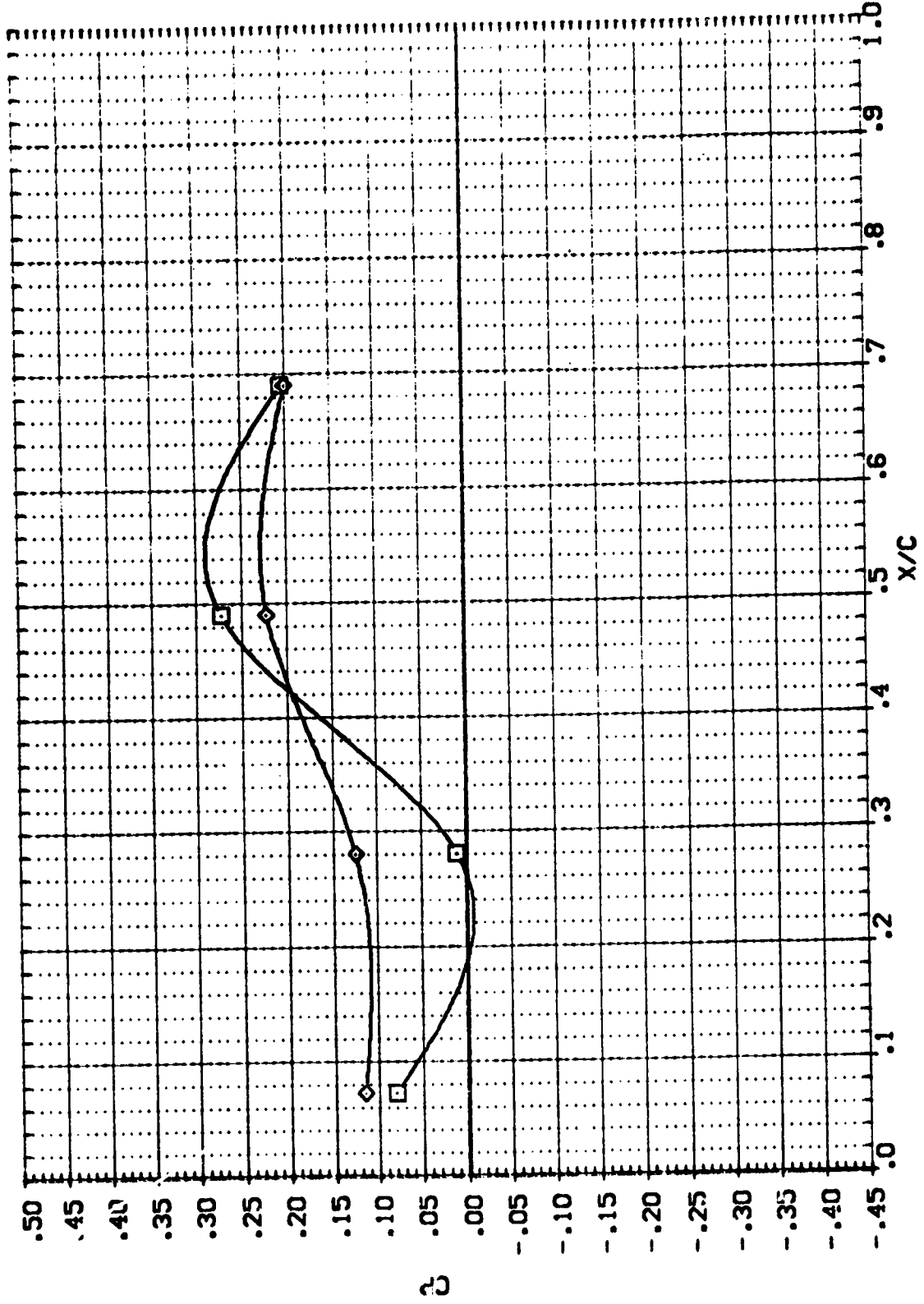
ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.898 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL: (R56AL1) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) .000
 (R56AL5) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 81) .000
 (R56AL7) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 82) .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

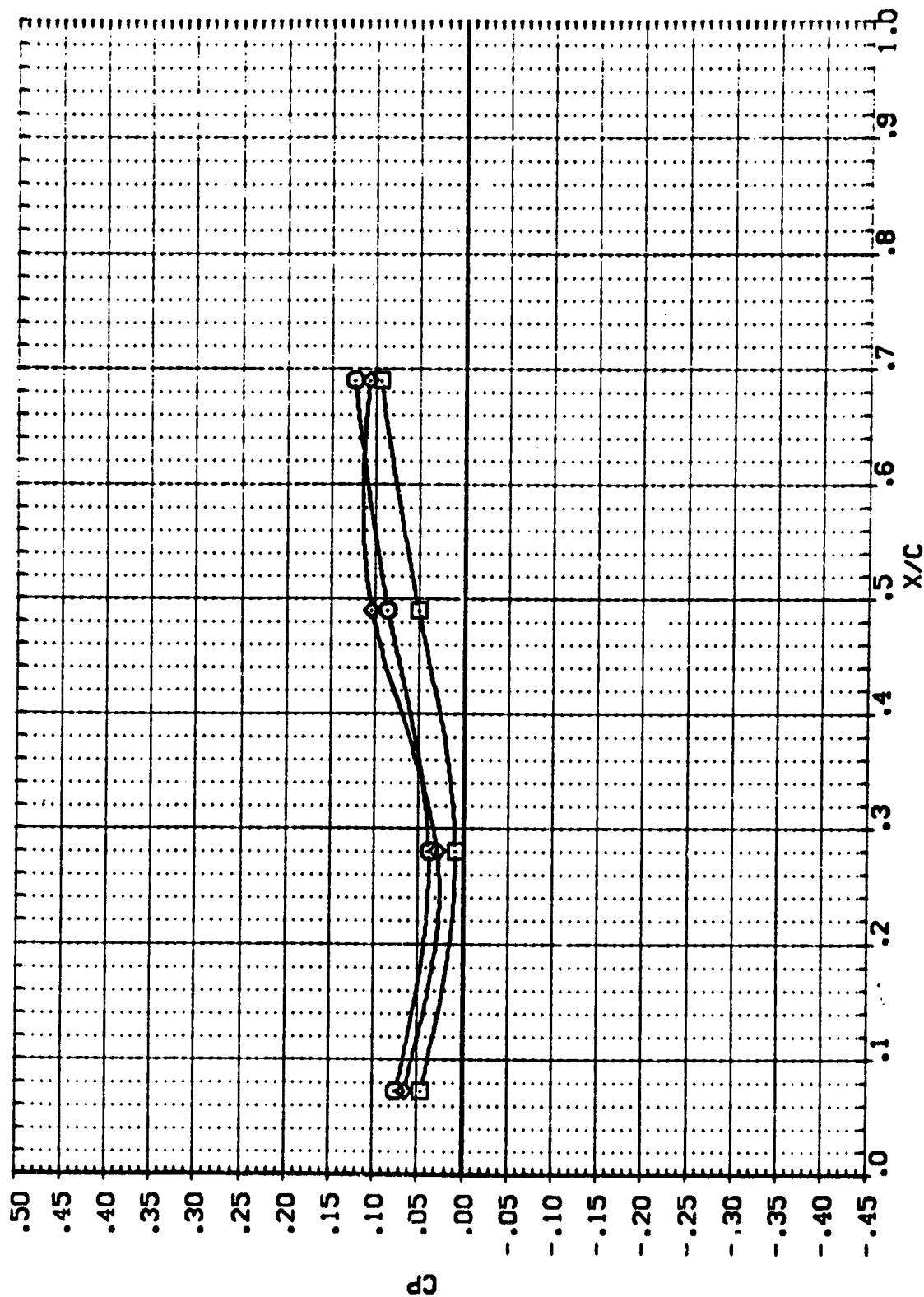
MACH = 1.959 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

(R564L1) MSC 508(1A53) GAS SUPPLY STRUT (CIF/1) .000 .000 .000

(R564L6) MSC 508(1A53) GAS SUPPLY STRUT (CIF/1 91) .000 .000 .000

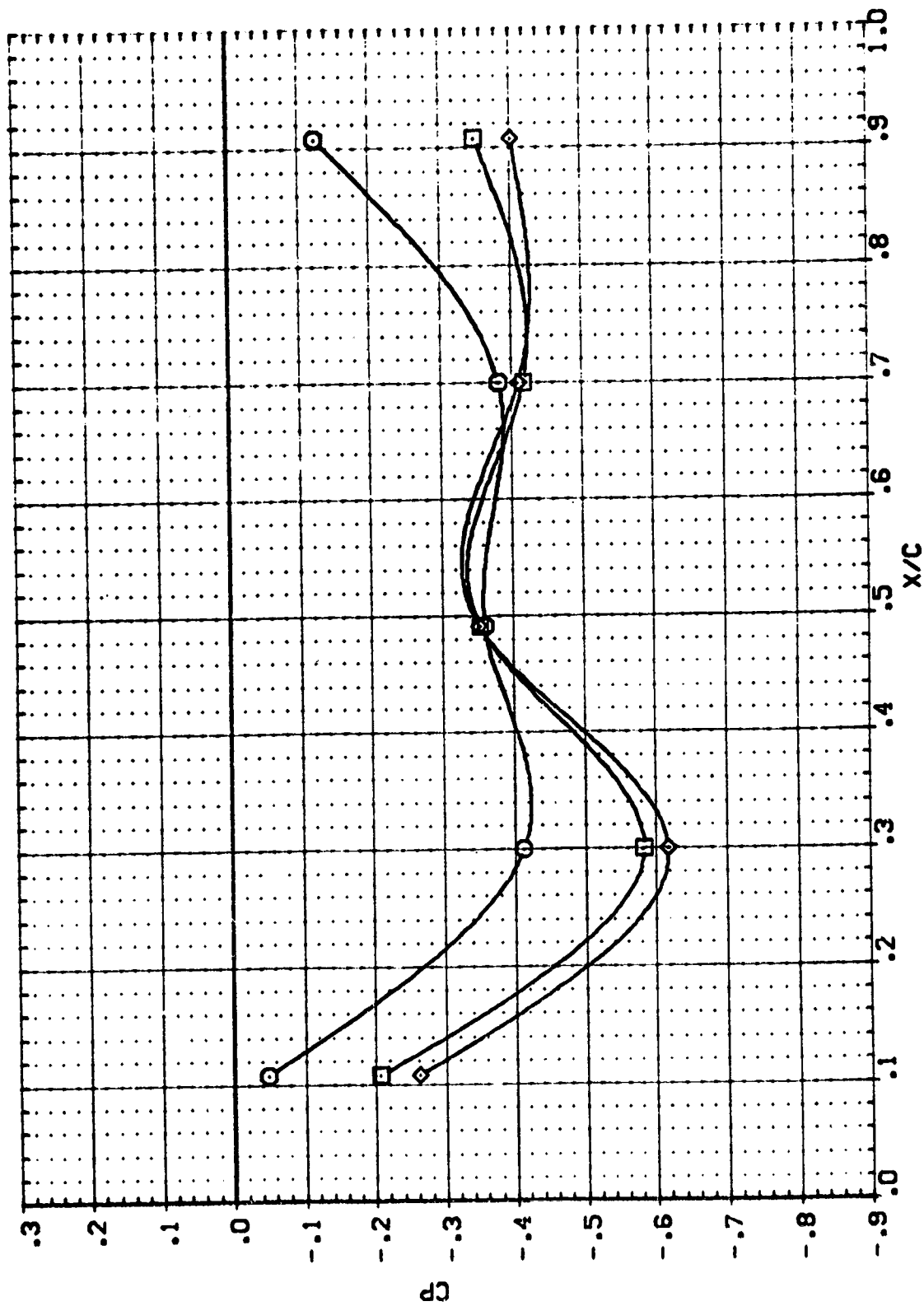
(R564L7) MSC 508(1A53) GAS SUPPLY STRUT (CIF/1 62) .000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 2.990 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A11]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[R56A12]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62 H2/1)	.000	.000	-90.000
[R56A13]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62 H2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

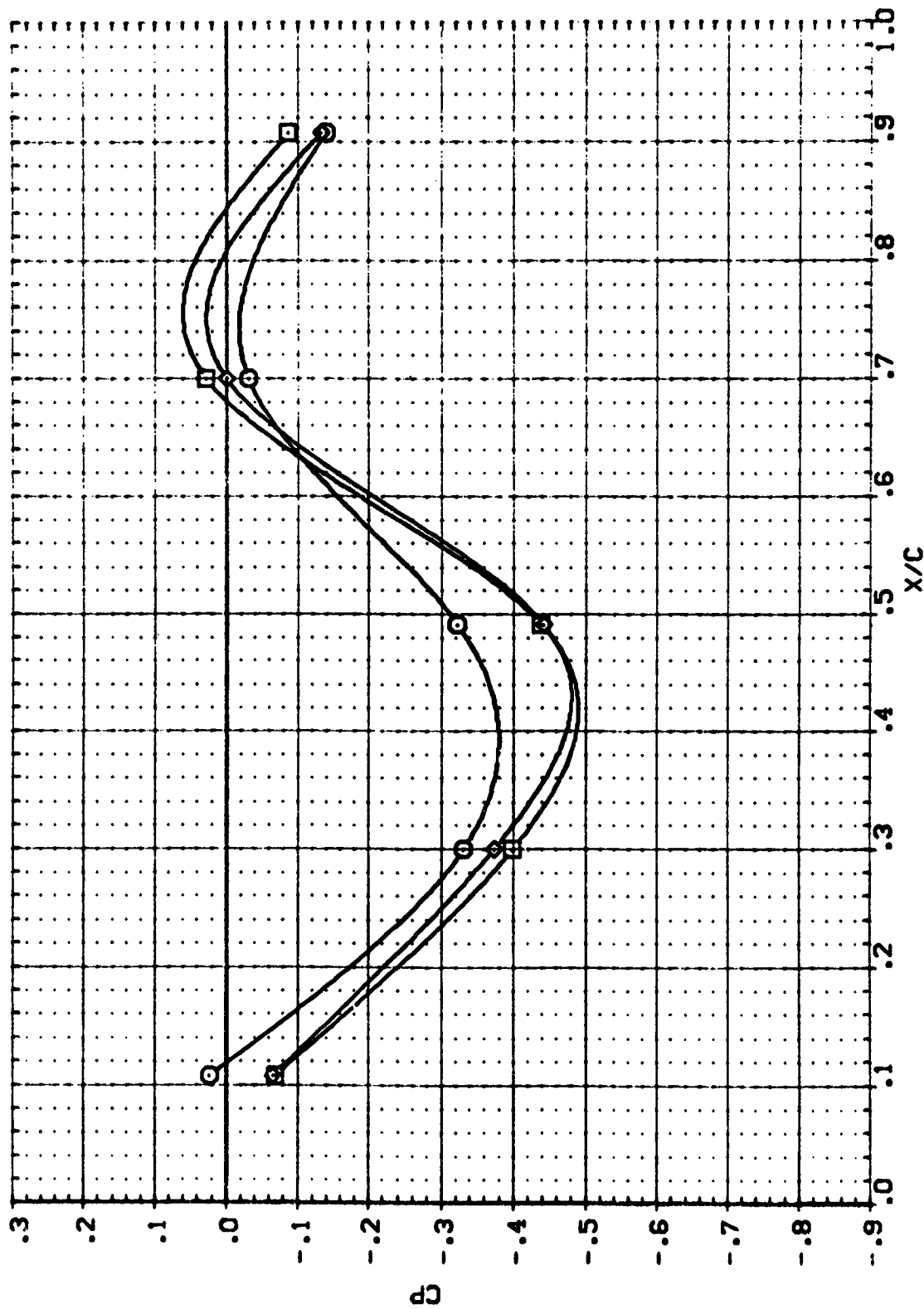
MACH = .905 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R964U1)
(R964U8)
(R964U9)

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2)

ALPHA BETA PHI
.000 .000 .000
.000 .000 -90.000
.000 .000 -90.000



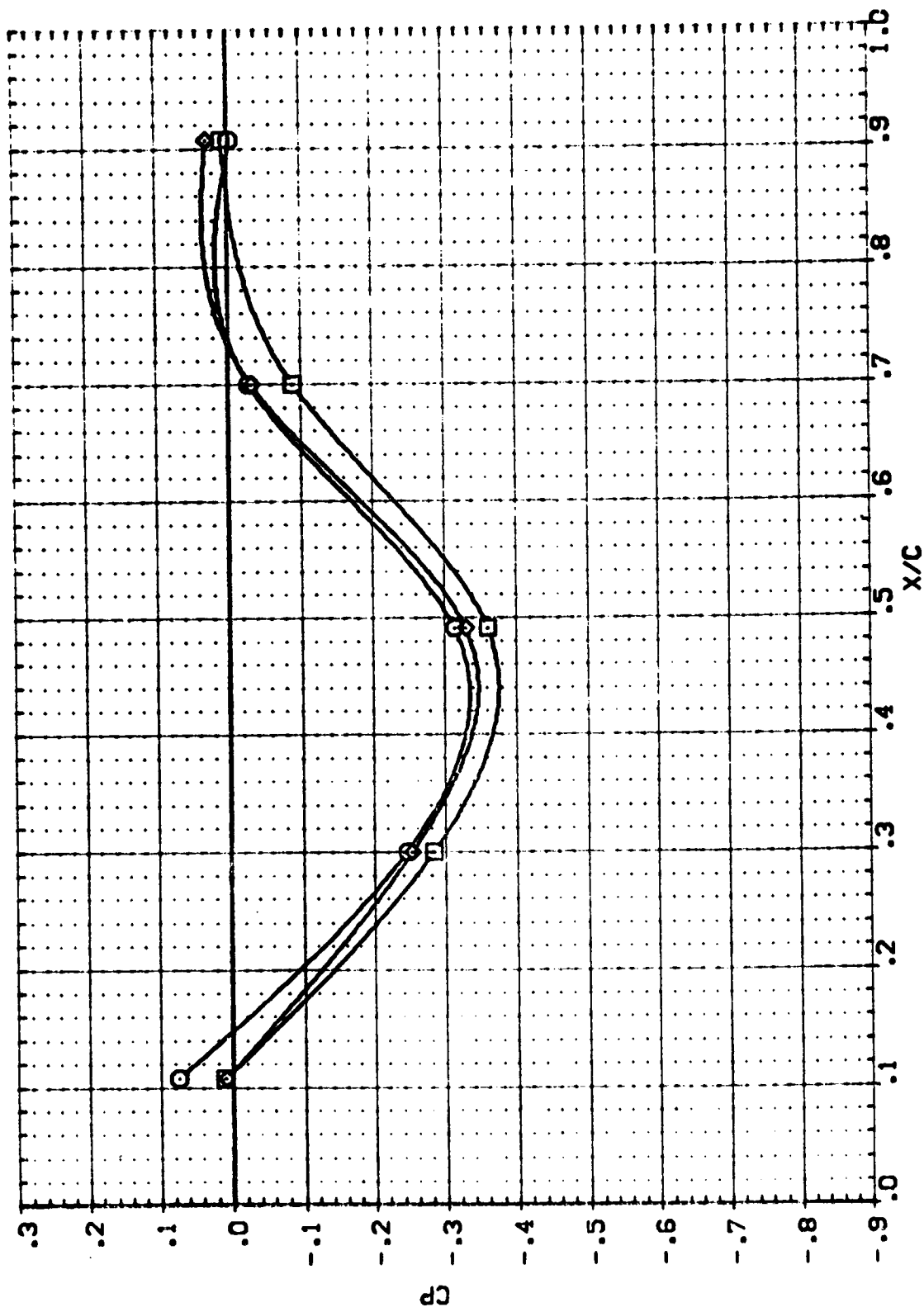
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 1.137 ALPHA = .000 2Y/B = .511

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DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

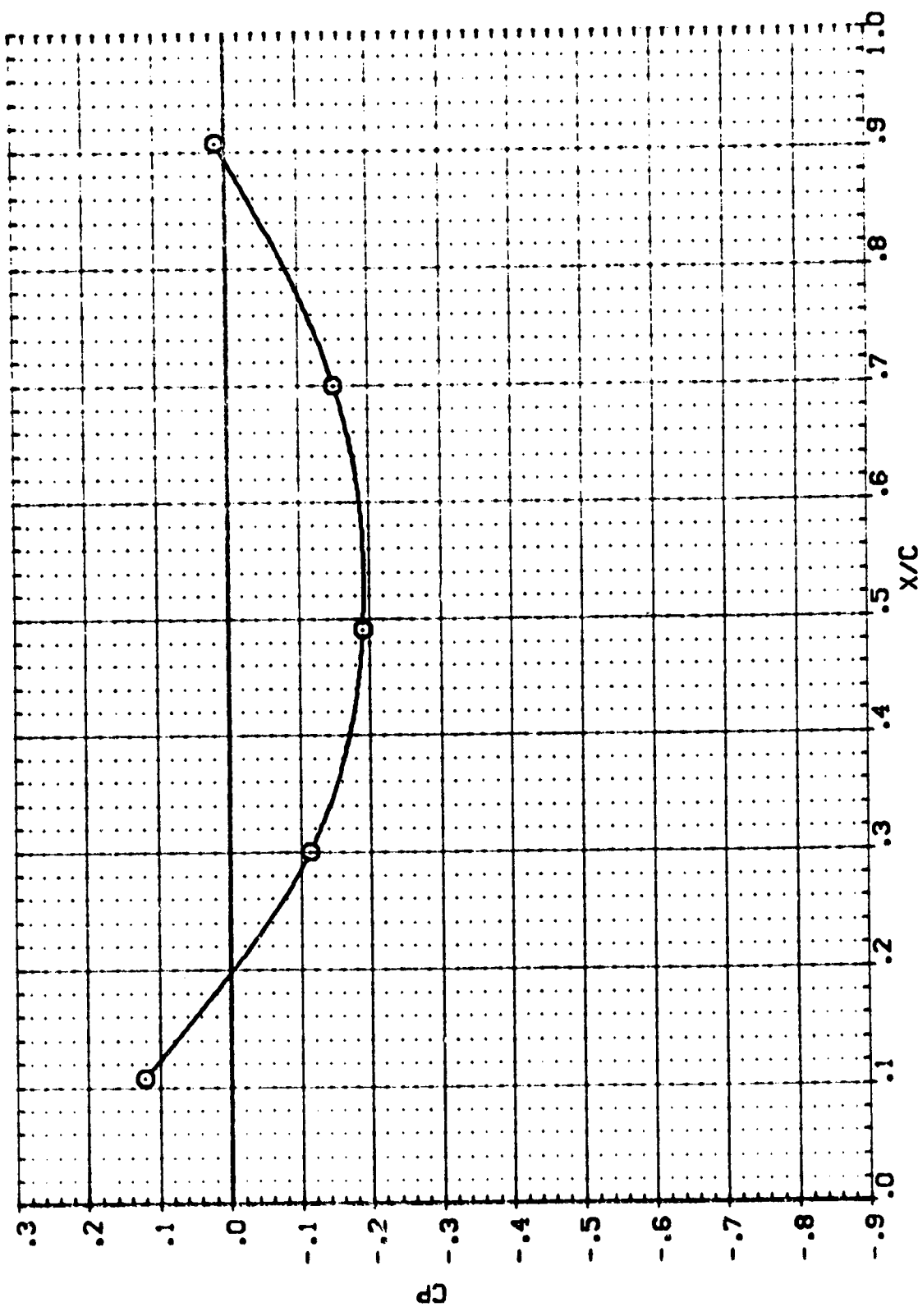
[R56A1]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[R56A2]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 82 M2/1)	.000	.000	-90.000
[R56A3]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 82 M2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 1.456 ALPHA = .000 2Y/B = .511 PAGE 117

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56A11]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R56A12]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)	.000	.000	-50.000
[R56A13]	HSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2)	.000	.000	-90.000






ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 1.898 ALPHA = .000 2Y/B = .511 PAGE 118

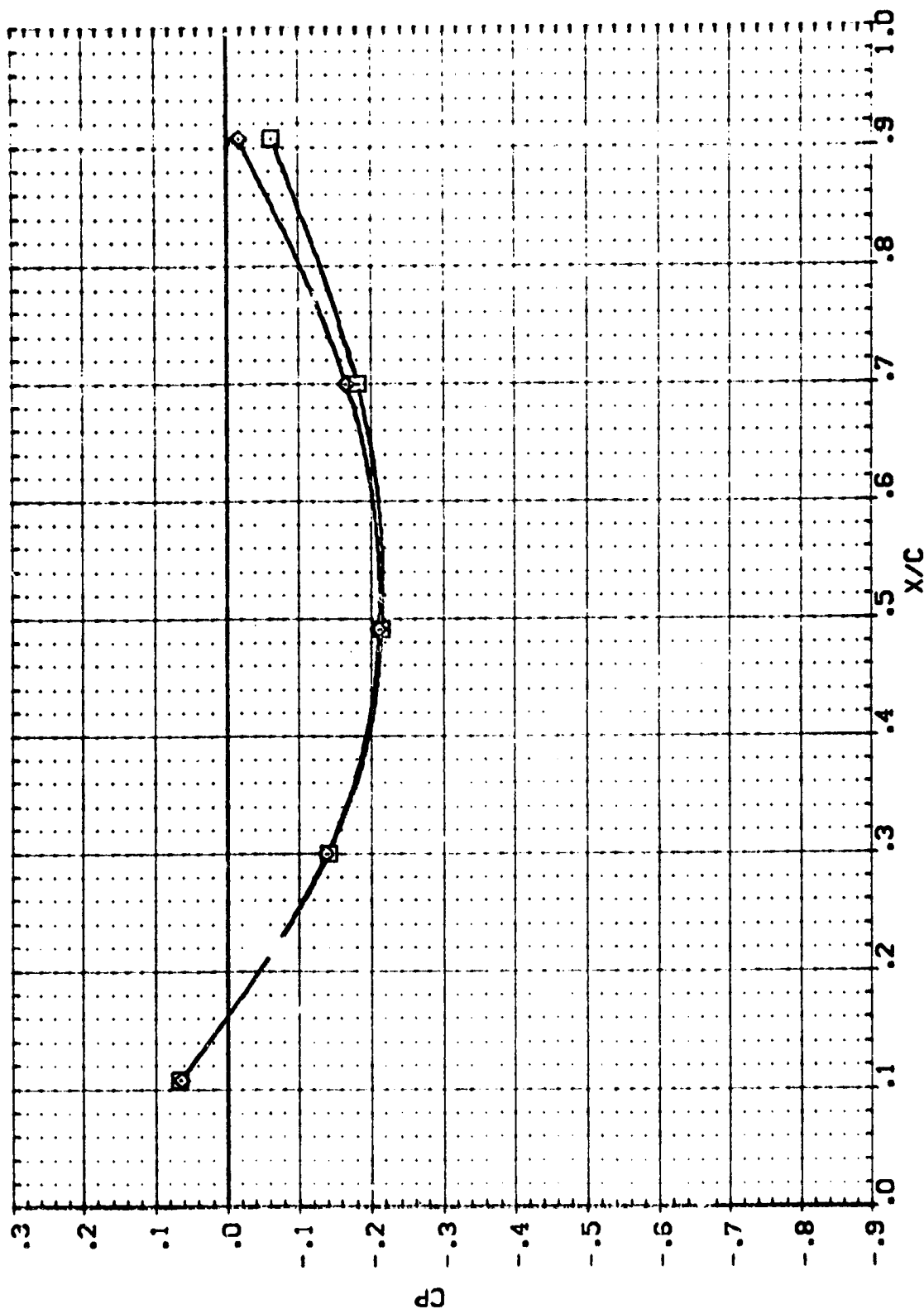


DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R56A1) 
 (R56A1B) 
 (R56A1C) 

R56C 500(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1
 R56C 500(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1
 R56C 500(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/2

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 -90.000
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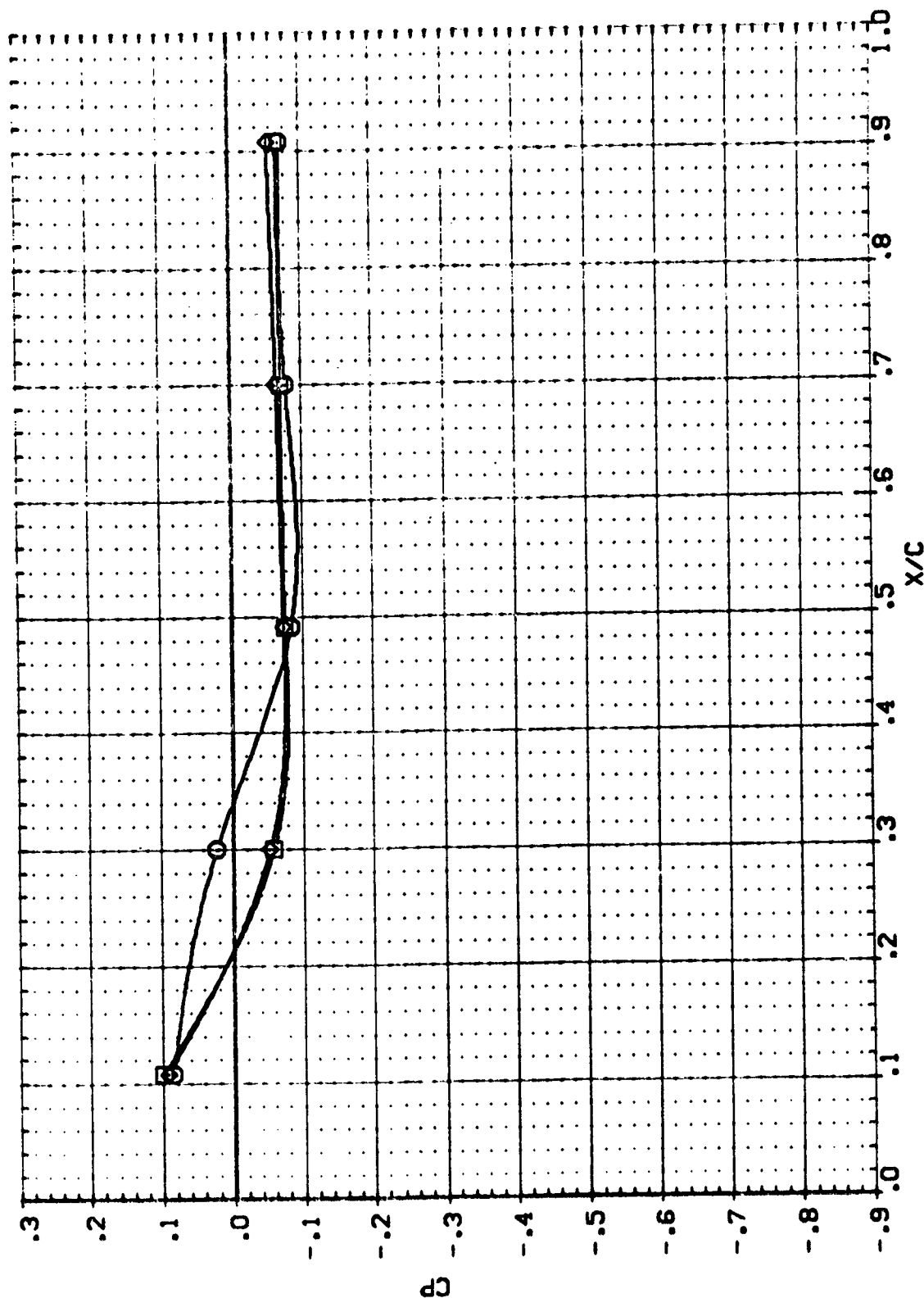
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 1.958 ALPHA = .000 2Y/B = .511

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56A1] MSFC 588(1A53) GAS SUPPLY STRUT [CIF/1] 62 M2/1)
 [R56A1B] MSFC 588(1A53) GAS SUPPLY STRUT [CIF/1] 62 M2/1)
 [R56A1C] MSFC 588(1A53) GAS SUPPLY STRUT [CIF/1] 62 M2/2)

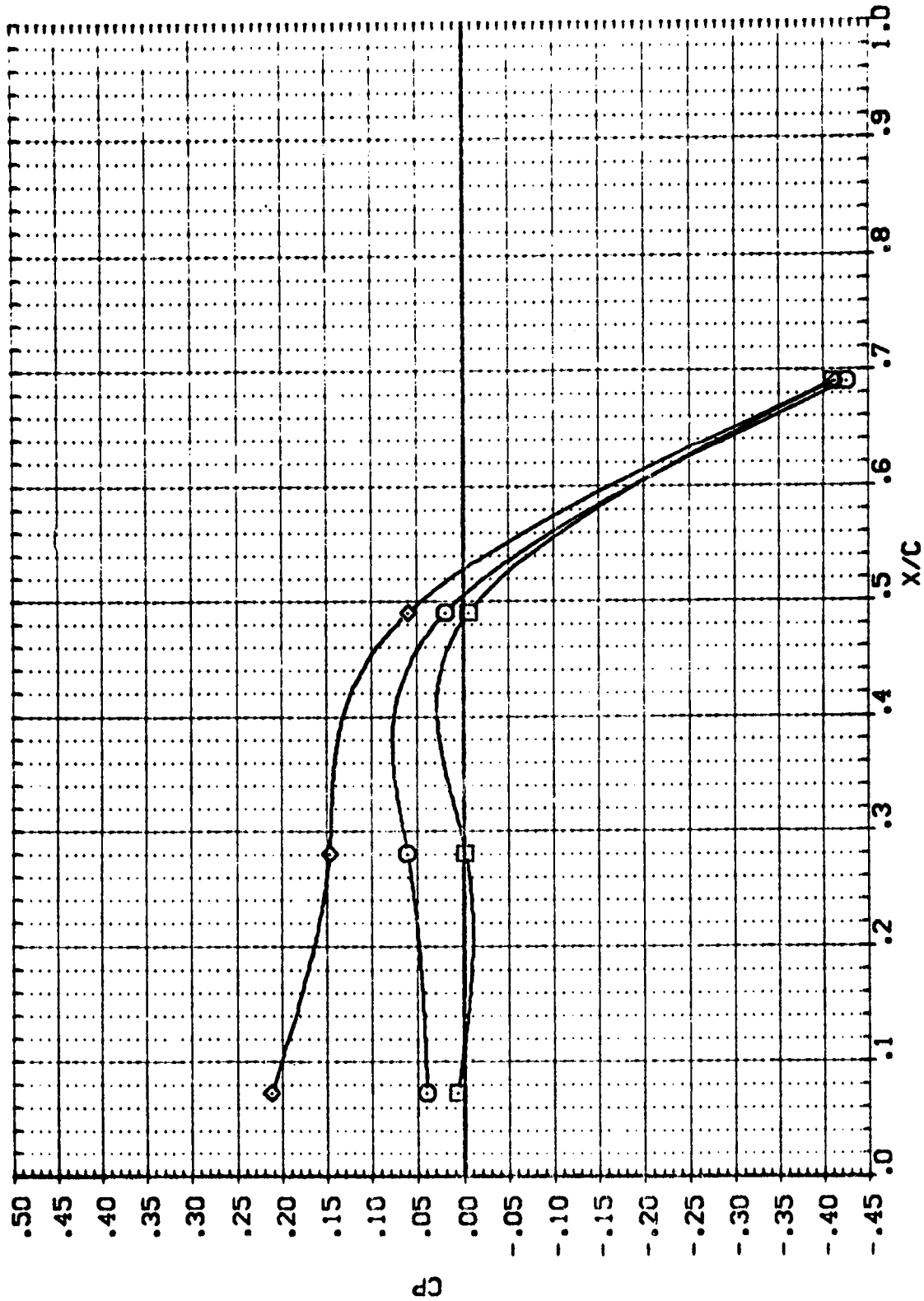
ALPHA BETA PHI
 .000 .000 .000
 .000 .000 -90.000
 .000 .000 -90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 2.990 ALPHA = .000 2Y/B = .511

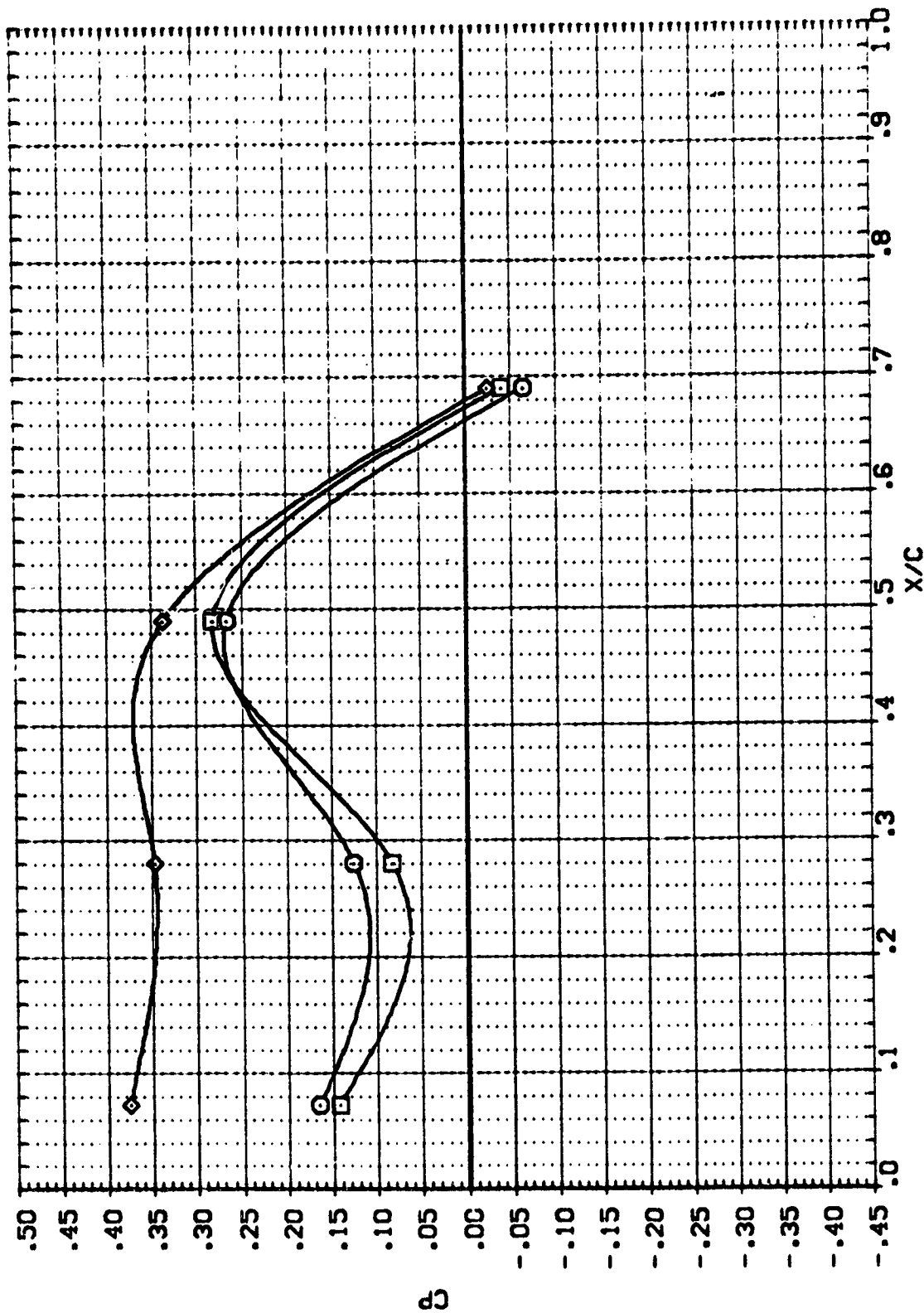
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(RSGAL1)	MSFC 5681(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
(RSGAL8)	MSFC 5681(A53) GAS SUPPLY STRUT (C1F/1 62 P2/1)	.000	.000	-90.000
(RSGAL9)	MSFC 5681(A53) GAS SUPPLY STRUT (C1F/1 62 P2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS. WITH SRB SIDE MOUNT. LOWER WING

MACH = .905 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PMI
[R56AL1]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R56AL2]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)	.000	.000	.000
[R56AL3]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2)	.000	.000	.000



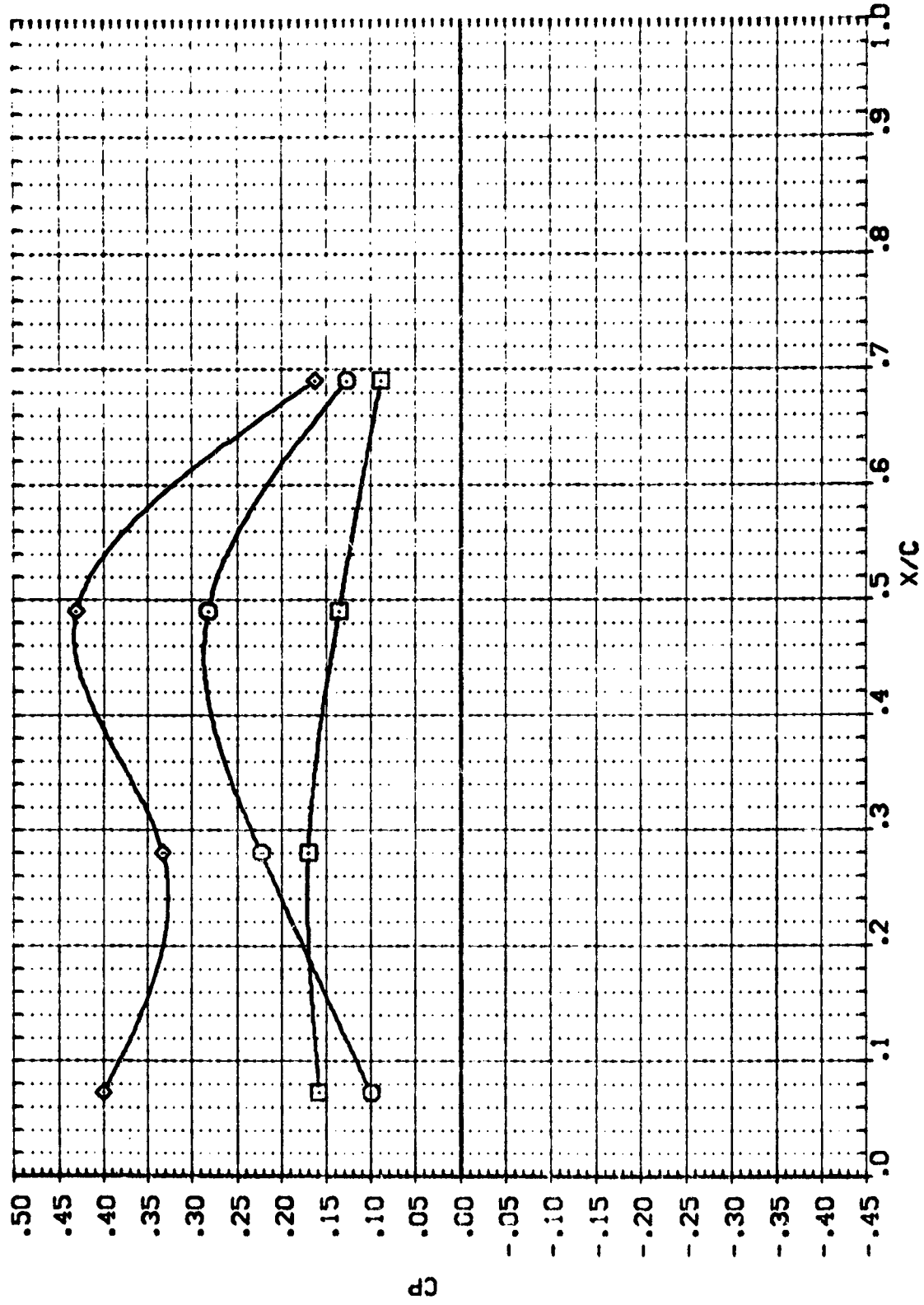
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 1.197 ALPHA = .000 2Y/B = .521

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DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(RS64L1)	◇	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
(RS64L8)	○	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1)	.000	.000	-90.000
(RS64L9)	□	MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 1.456 ALPHA = .000 2Y/B = .521

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DATA SET SYMBOL

CONFIGURATION DESCRIPTION	
MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53)	G'S SUPPLY STRUT (CIF/1) G2 M2/1
MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1) G2 M2/2

ALPHA	BETA	PHI
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.000	.000	.000
.000	.000	.000



MACH = 1.898 ALPHA = .000 2Y/B = .521

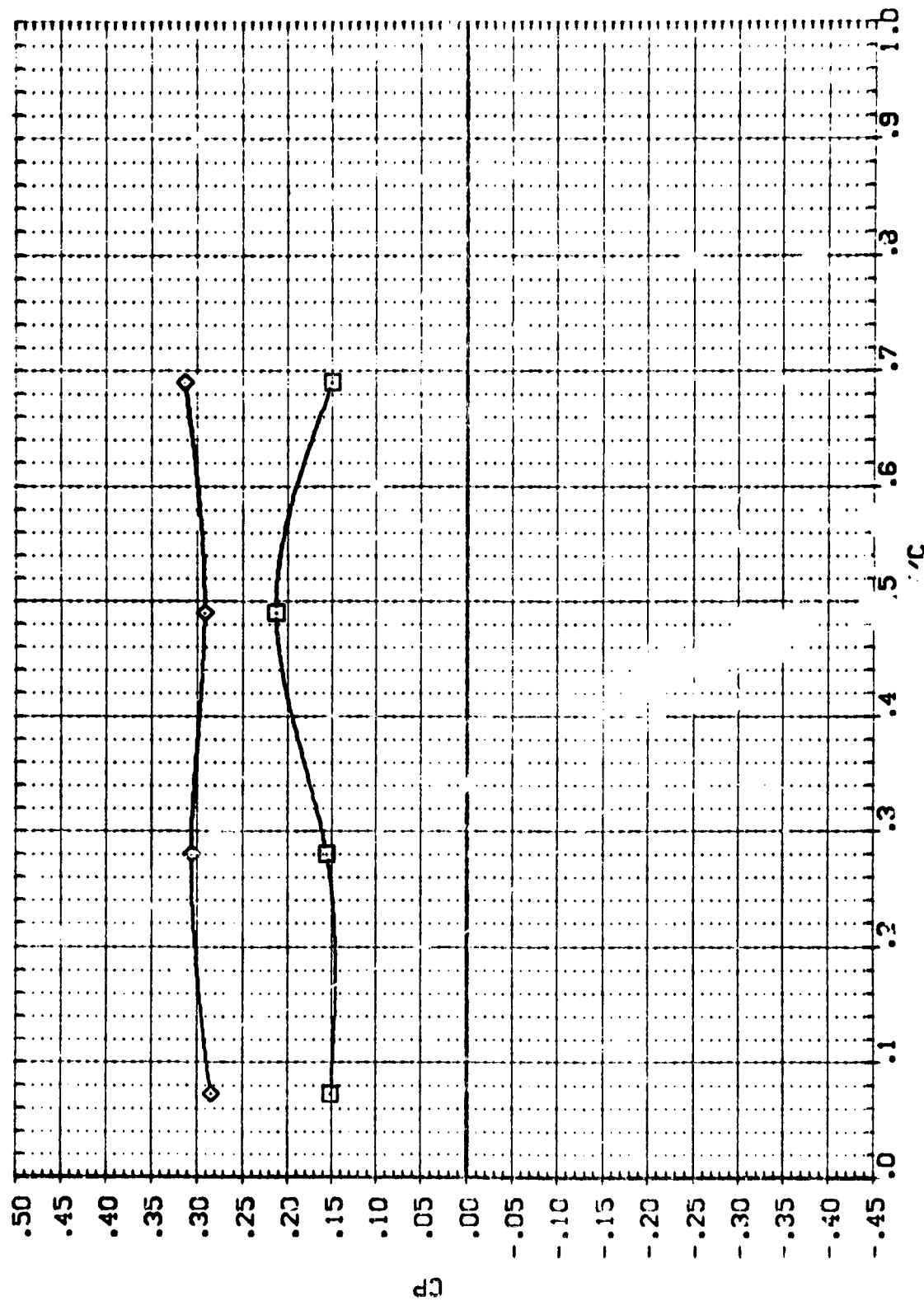
PAGE 124

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(P5641)
(P5641)
(P5641)

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 12/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 12/2)

ALPHA BETA PHI
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ORBITER / ET AIR SUPPLY FAIRING EFFECTS, 1988 SIDE MOUNT, LOWER WING

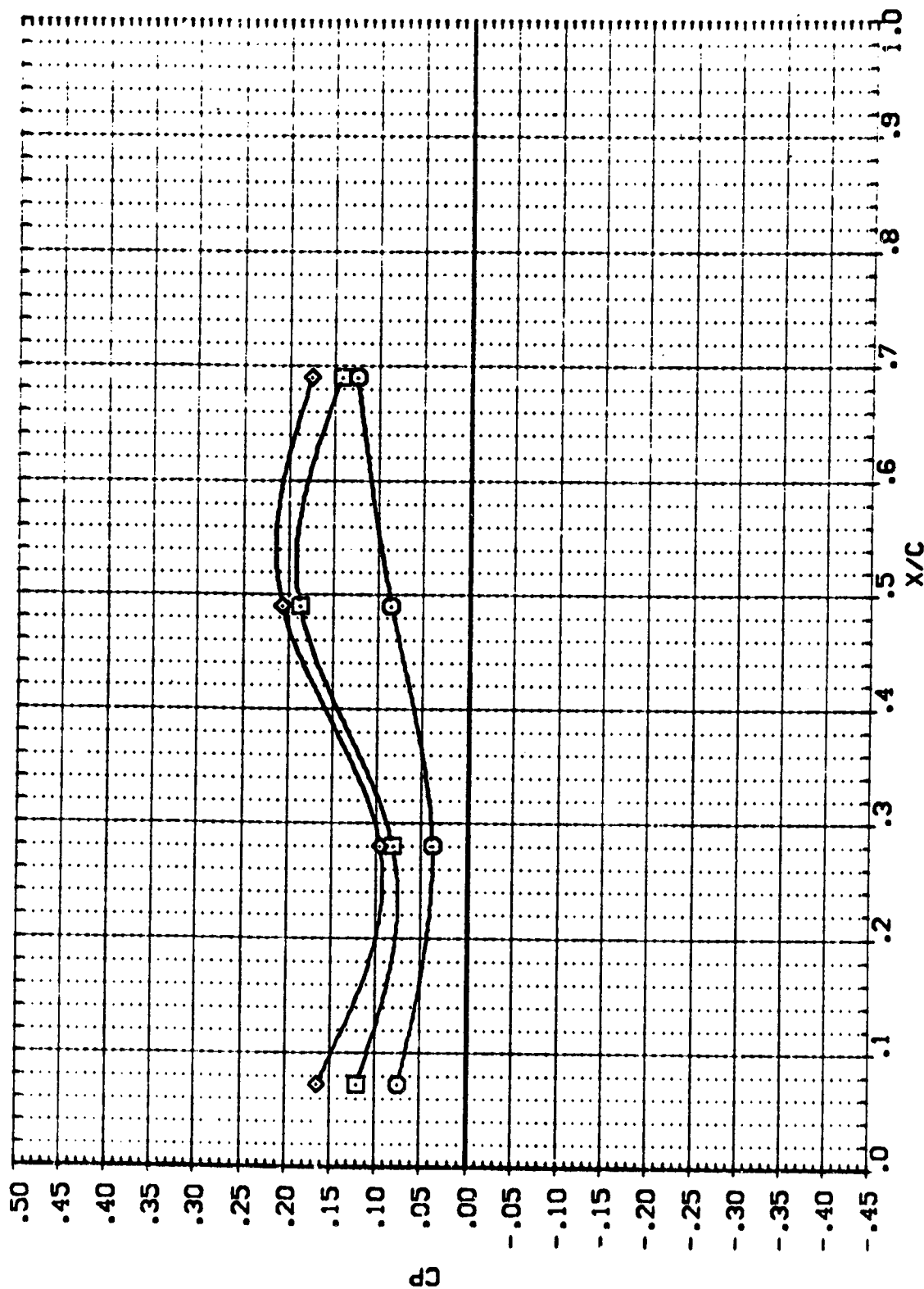
MACH = 1.958 ALPHA = .000 2Y/B = .521

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

[R564L1] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) .002 .000 .000

[R564L8] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/1 .000 .000 -90.000

[R564L9] MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62 M2/2 .000 .000 -90.000

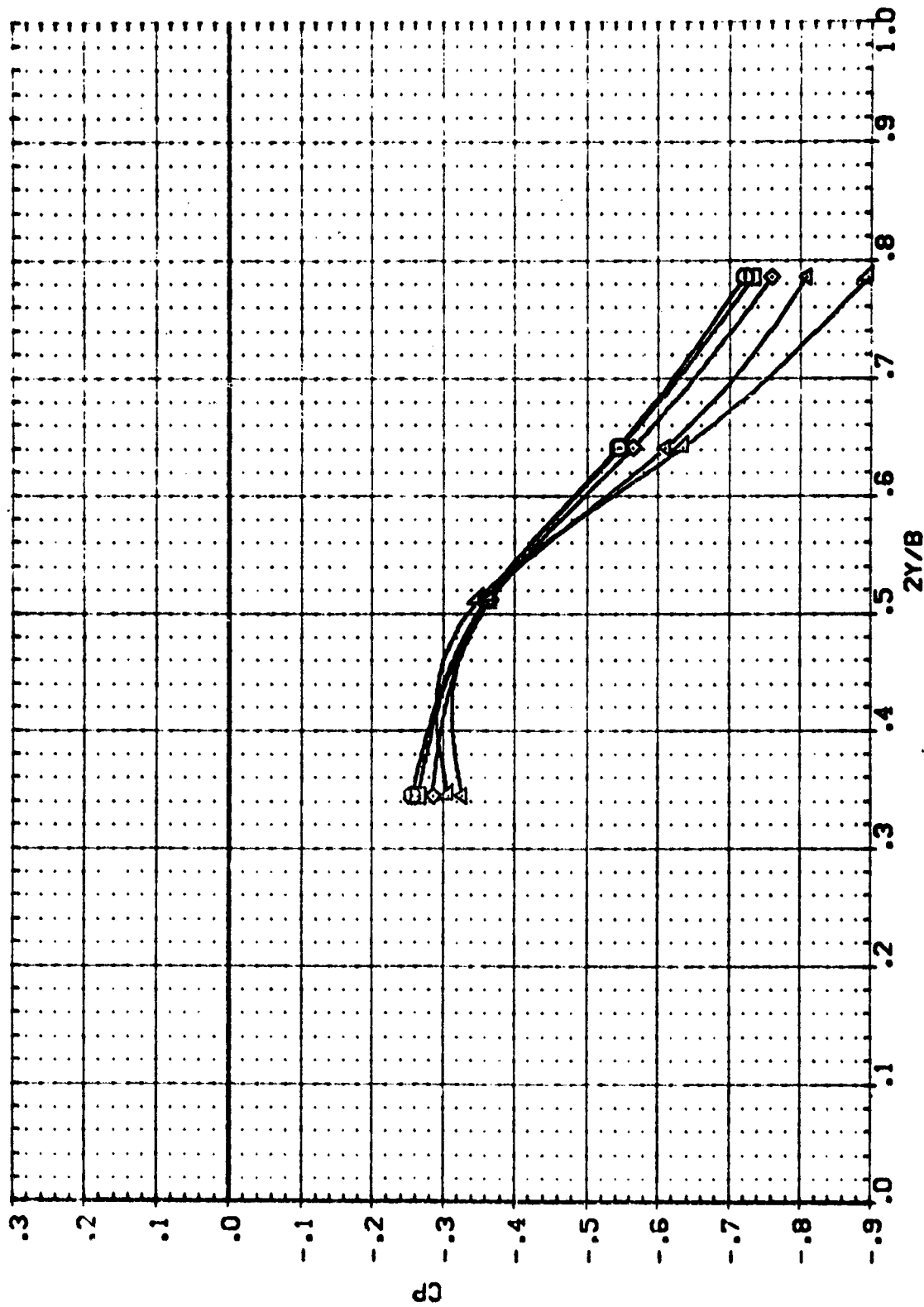


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 2.990 ALPHA = .000 2Y/B = .521

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R96L51]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M1/1)	.000	.000	.000
[R96L52]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M1/2)	.000	.000	.000
[R96L53]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M2/1)	.000	.000	.000
[R96L54]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000
[R96L55]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1) M2/2)	.000	.000	.000

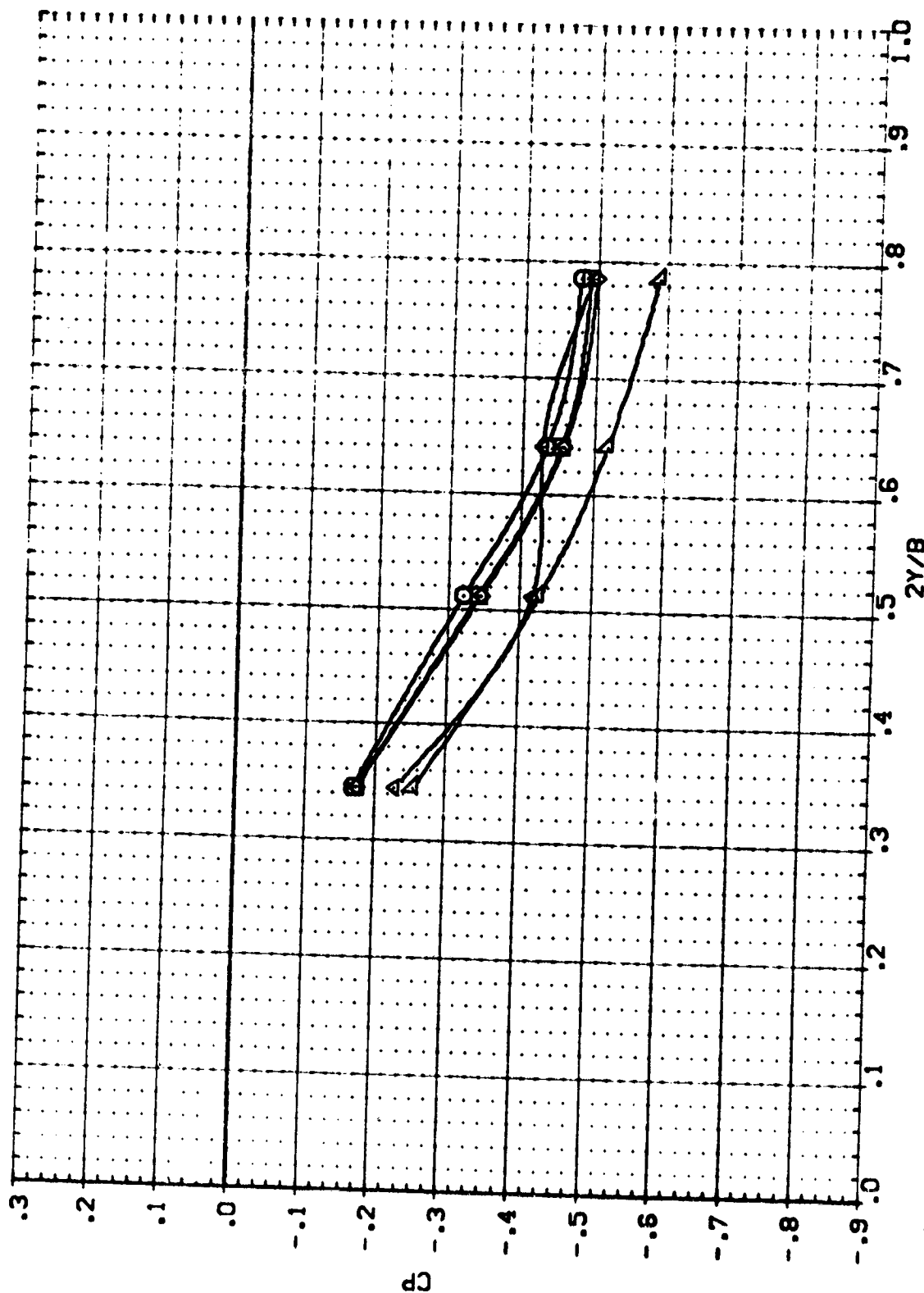


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = .905 ALPHA = .000 X/C = .491

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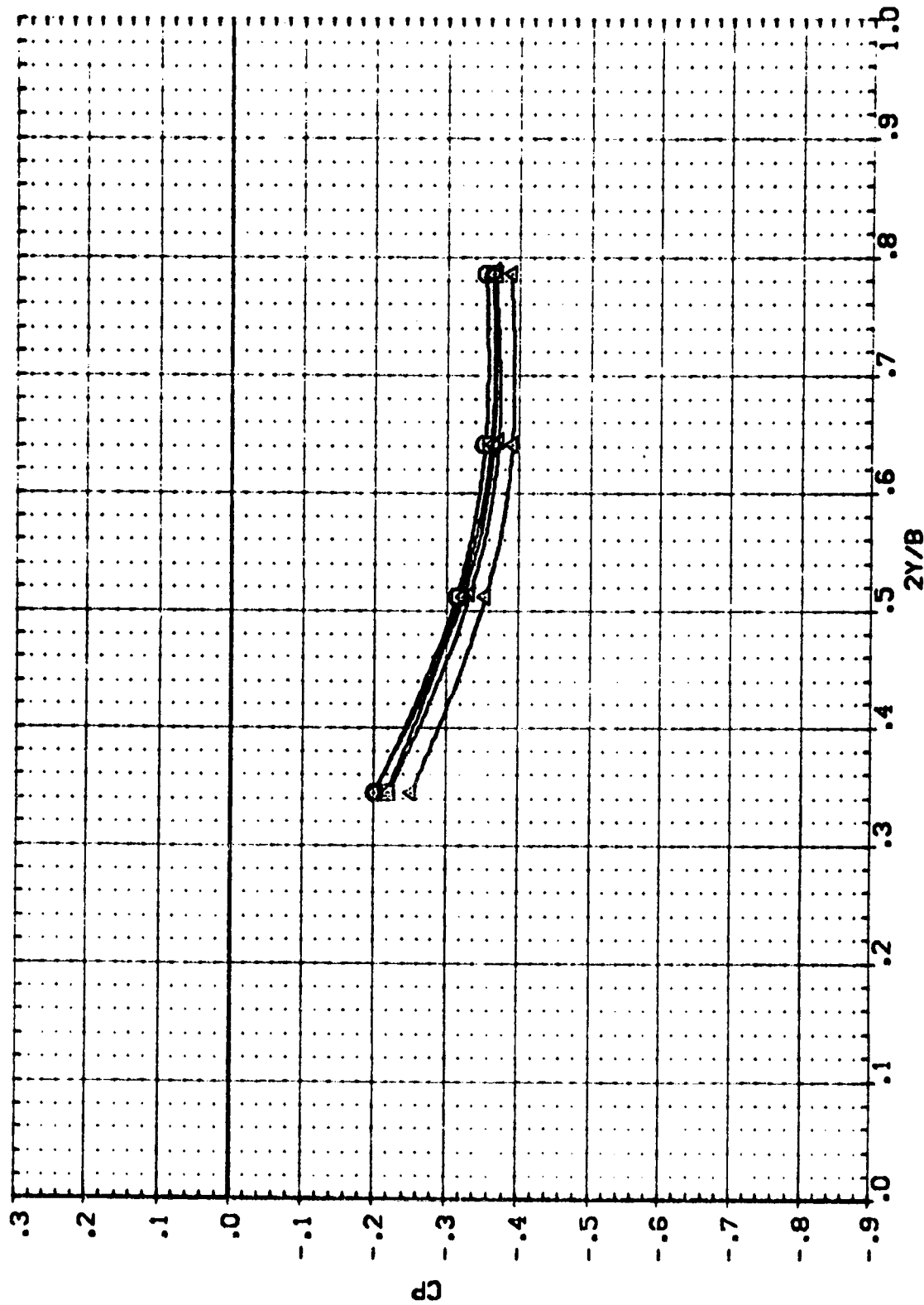
	ALPHA	BETA	PHI
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6	.000	.000	.000
7	.000	.000	.000
8	.000	.000	.000
9	.000	.000	.000
10	.000	.000	.000
11	.000	.000	.000
12	.000	.000	.000
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT. UPPER WING

$$\begin{aligned} \text{MACH} &= 1.197 & \text{ALPHA} &= .000 & \text{X/C} &= -.491 \end{aligned}$$

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R96L51]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R96L52]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1 M1/1)	.000	.000	.000
[R96L53]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1 M1/2)	.000	.000	.000
[R96L54]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1 M2/1)	.000	.000	-80.000
[R96L55]	MSFC 588(IAS3) GAS SUPPLY STRUT (CIF/1 M2/2)	.000	.000	-90.000



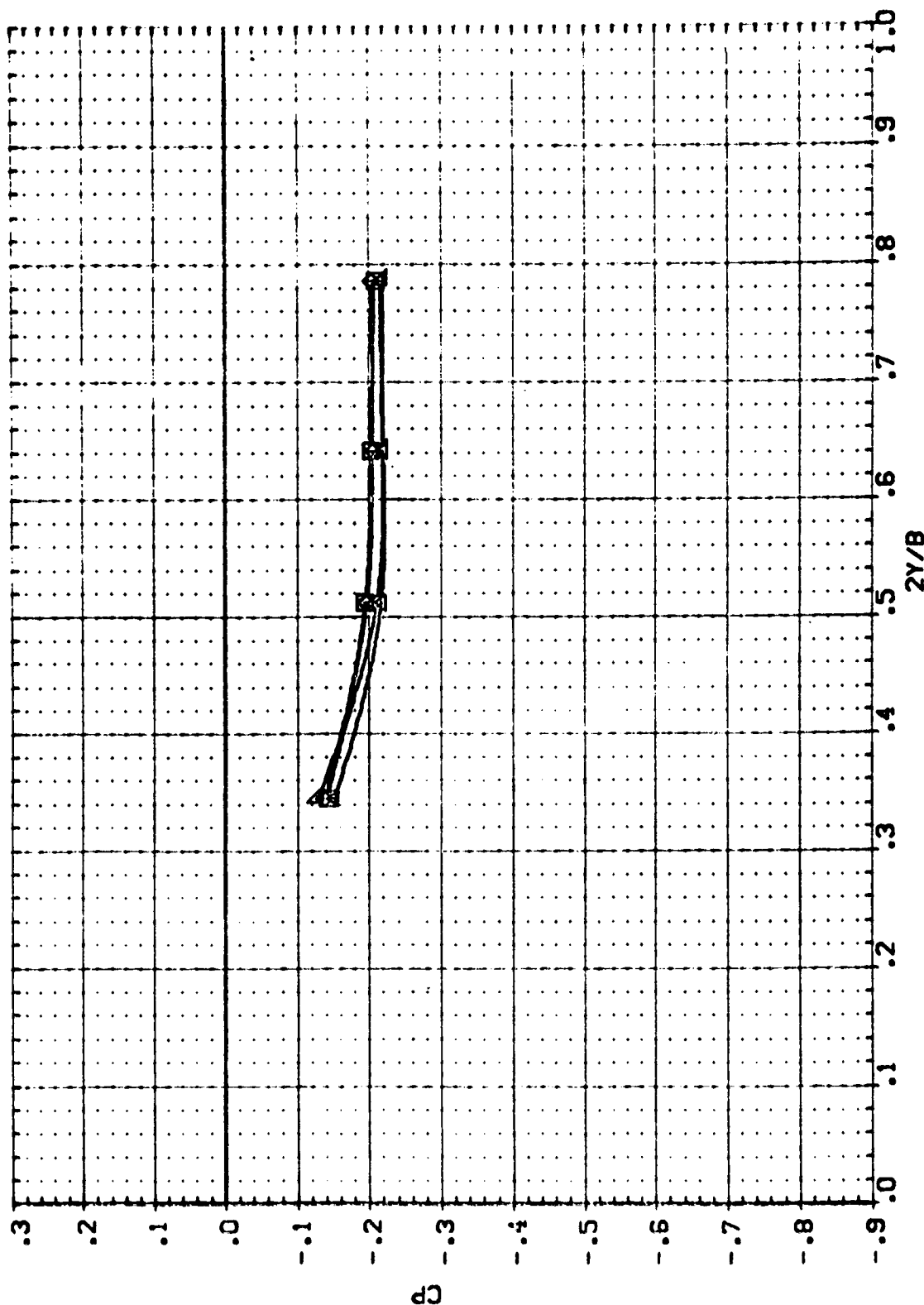
STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 1.456 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56U51] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/1)
 [R56U52] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M1/2)
 [R56U53] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/1)
 [R56U54] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)
 [R56U55] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) M2/2)

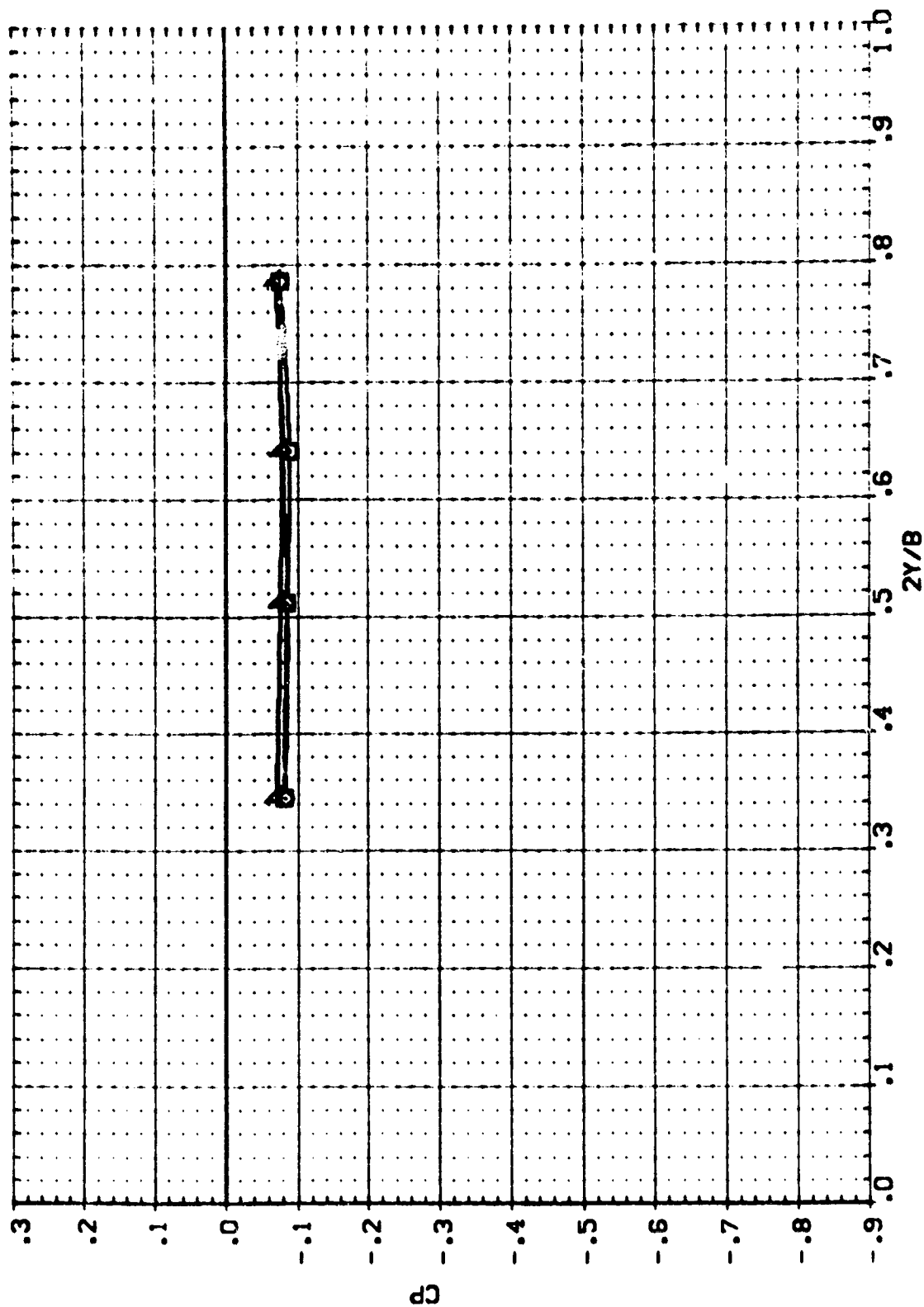
ALPHA BETA PHI
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 1.961 ALPHA = .000 X/C = .491

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PMI
[R9B151]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1) M1/1)	.000	.000	.000
[R9B152]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1) M1/2)	.000	.000	.000
[R9B153]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000
[R9B154]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000
[R9B155]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000

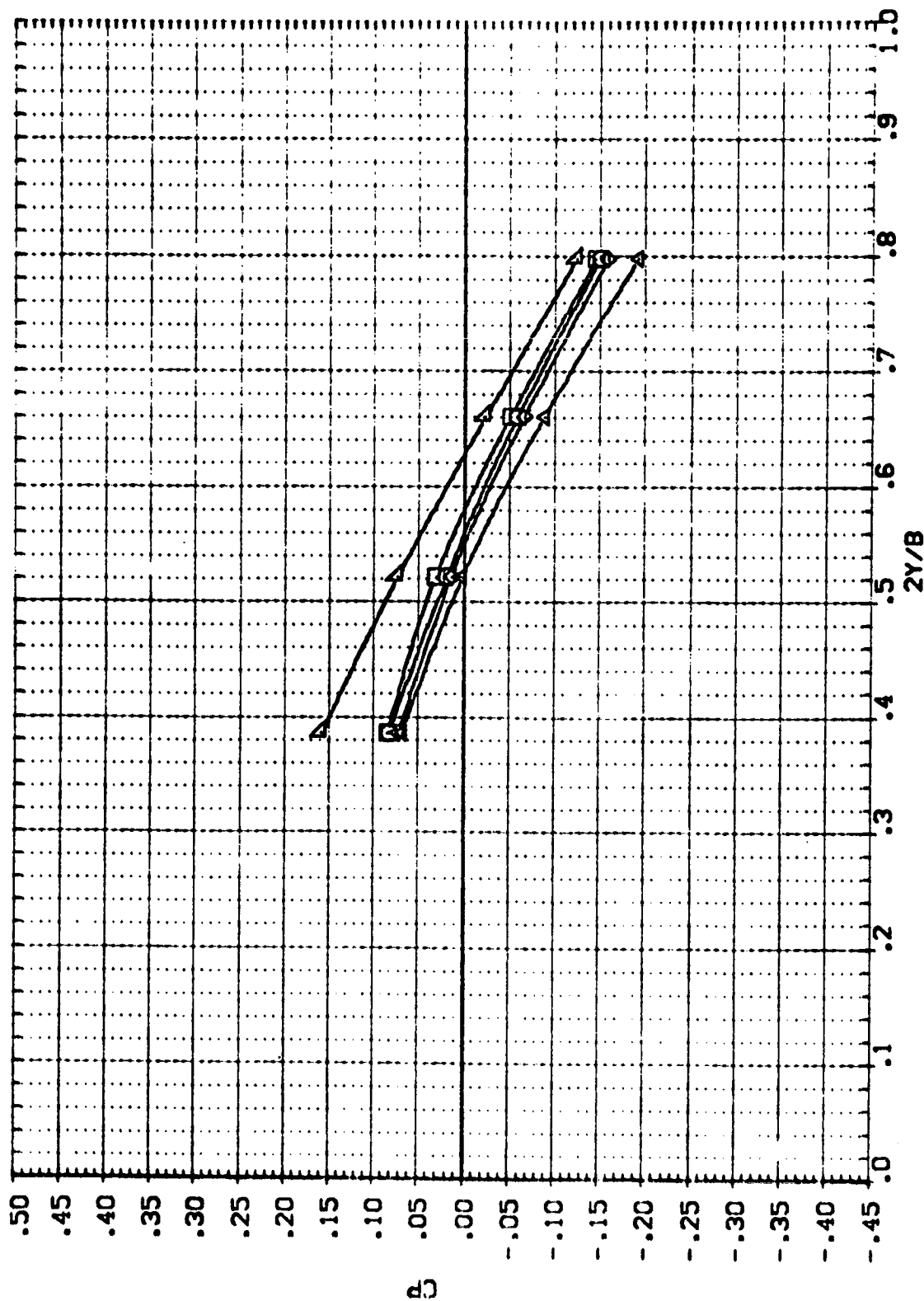


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, UPPER WING

MACH = 2.990 ALPHA = .000 X/C = .491

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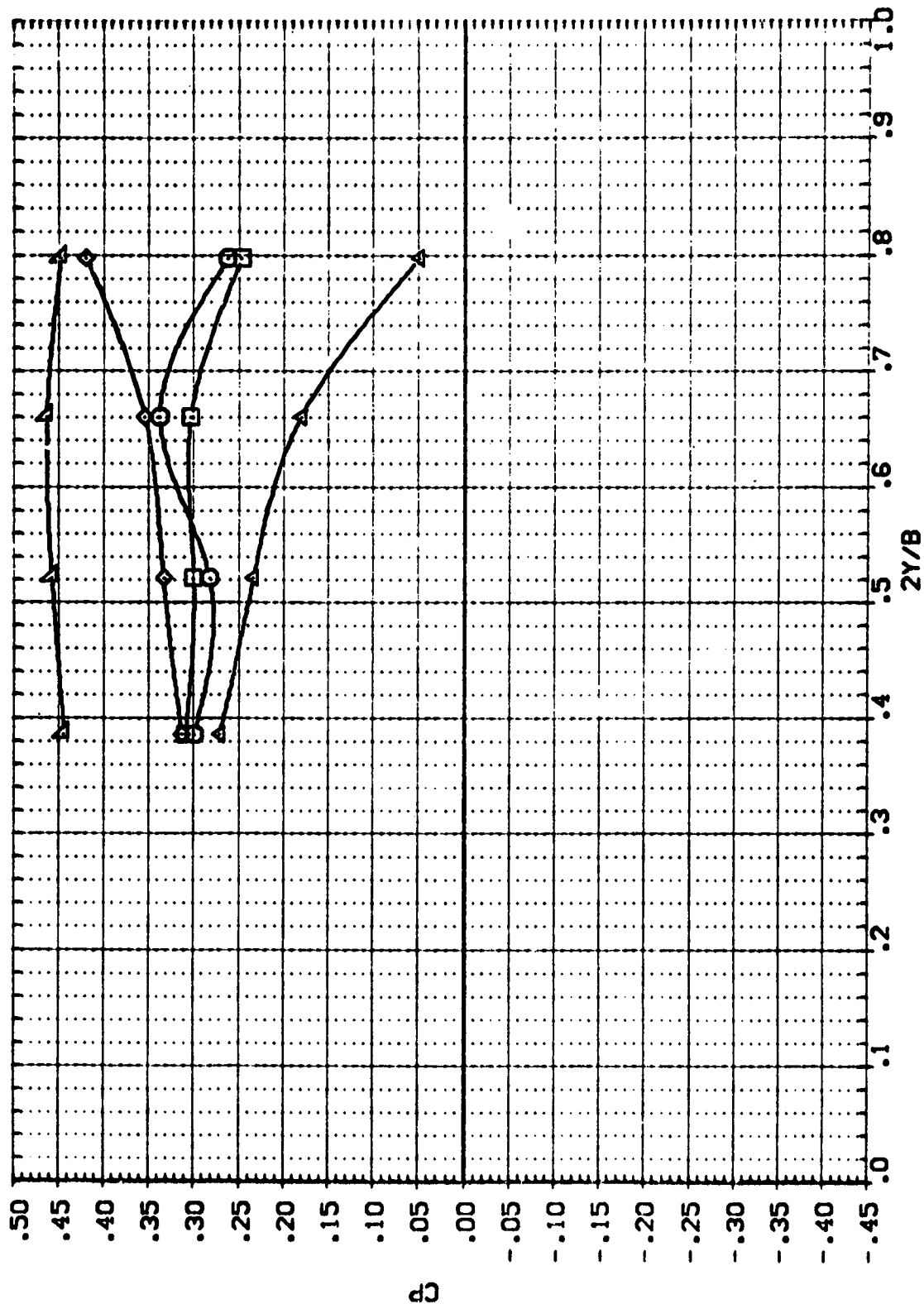
DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[RSL51]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[RSL52]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[RSL53]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[RSL54]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[RSL55]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT. LOWER WING

MACH = .905 ALPHA = .000 X/C = .490

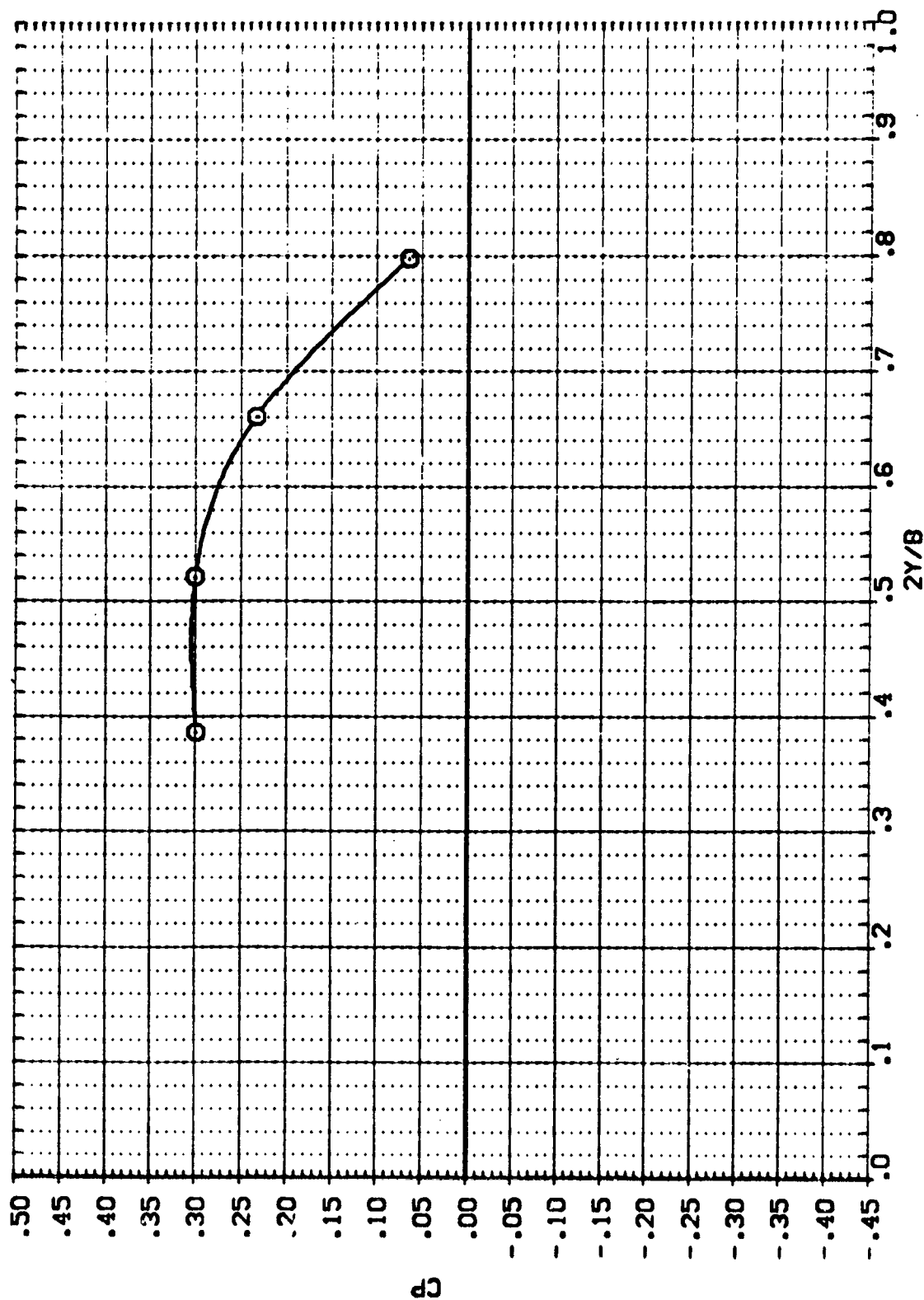
ALPHA	.000 .000 .000 .000 .000	BETA	.00 .000 .000 .000 .00	PHI	.000 .000 99.000 99.000 99.000
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STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = 1.456 ALPHA = .000 X/C = .490

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R56L51]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/1)	.000	.000	.000
[R56L52]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/2)	.000	.000	.000
[R56L53]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/1)	.000	.000	.000
[R56L54]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000
[R56L55]	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2)	.000	.000	.000

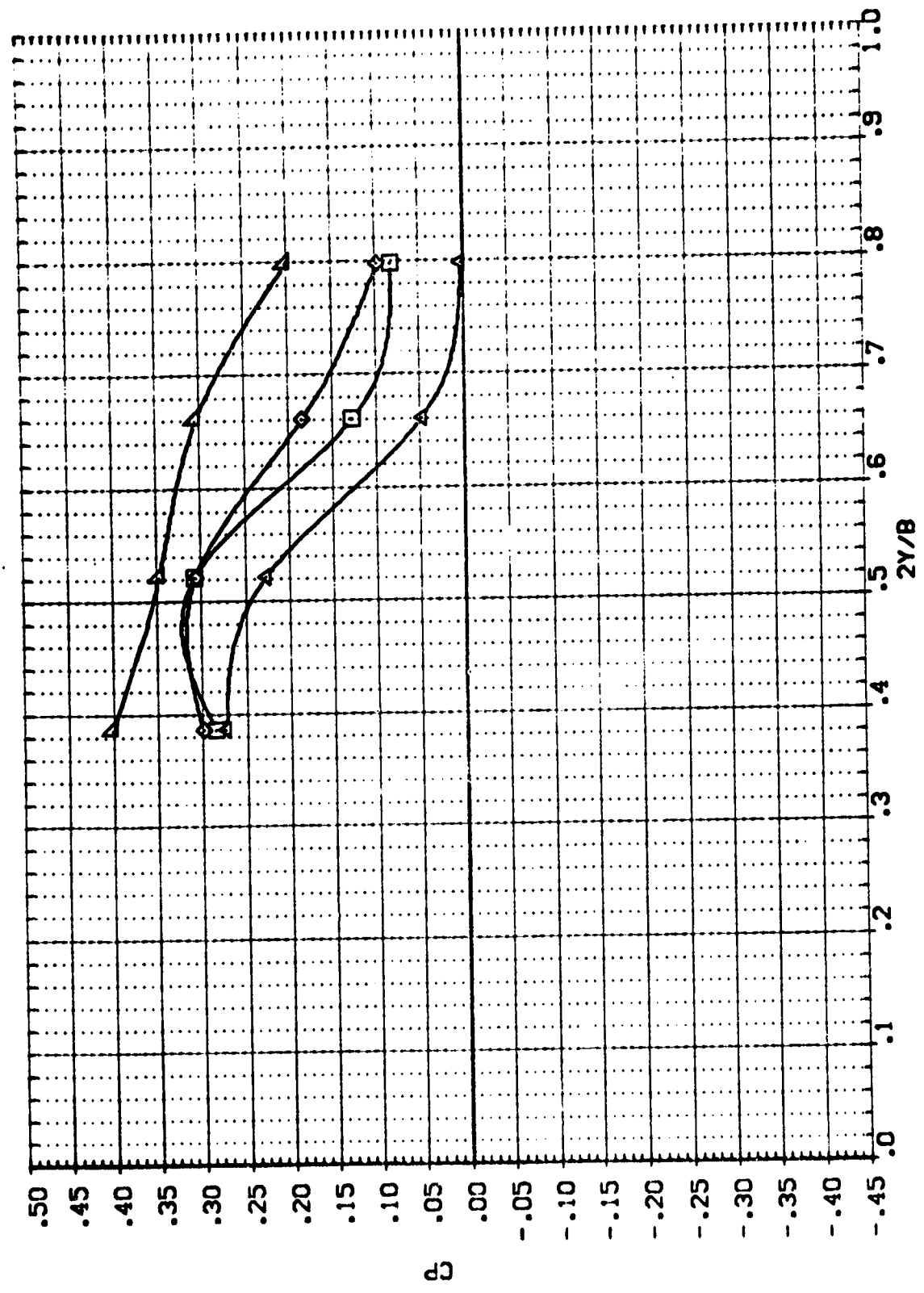


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = 1.898 ALPHA = .000 X/C = .490

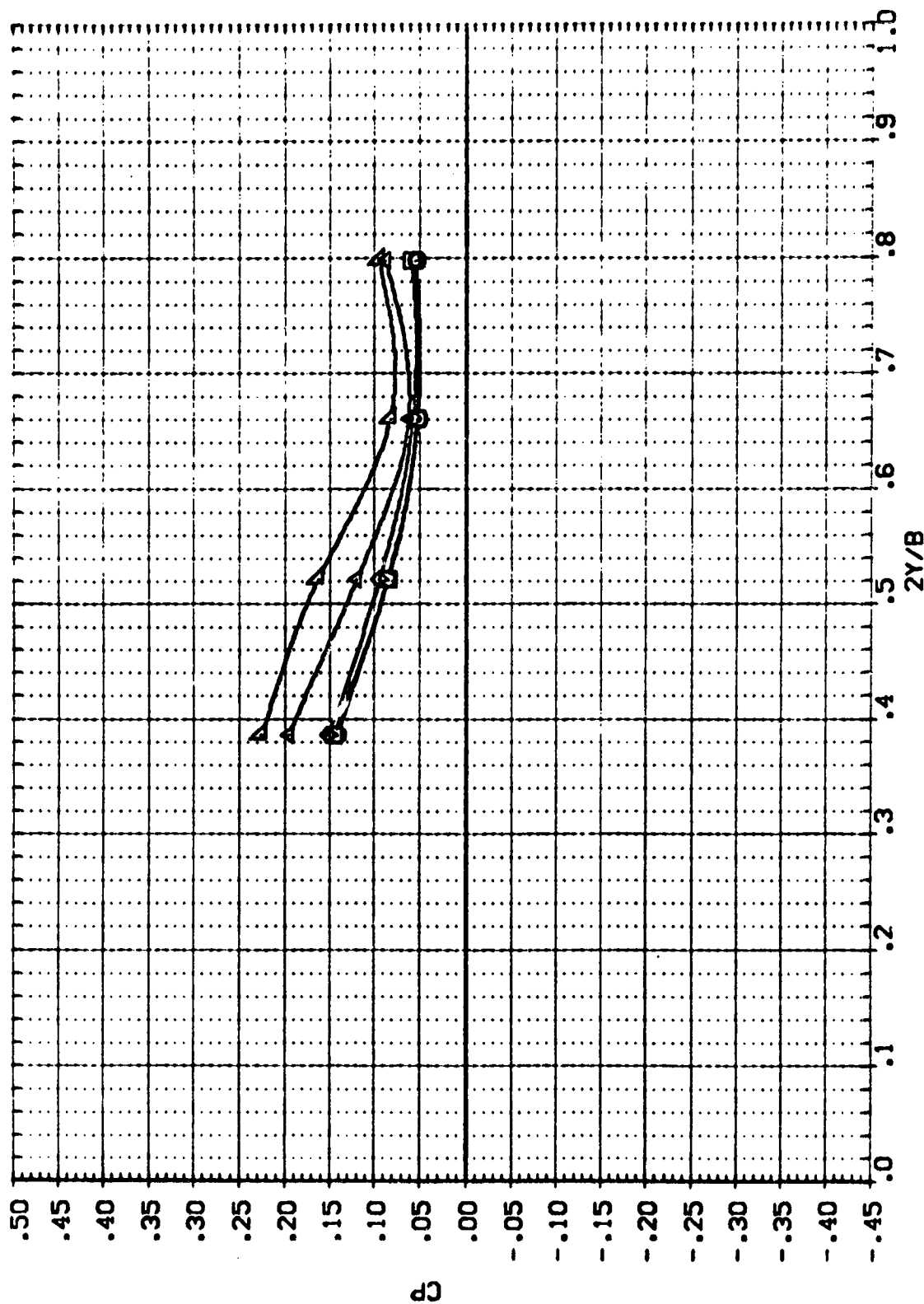
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DATA SET SYMBOL	CONF: SUPRATION DESCRIPTION	ALPHA	BETA	PHI
(R56LS1)	H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) M1/1	.000	.000	.000
(R56LS2)	H5FC 583(1A53) GAS SUPPLY STRUT (C1F/1) M1/2	.000	.000	.000
(R56LS3)	H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/1	.000	.000	.000
(R56LS4)	H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2	.000	.000	.000
(R56LS5)	H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) M2/2	.000	.000	.000



STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R98L51]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
[R98L52]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1 M1/1)	.000	.000	.000
[R98L53]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1 M1/2)	.000	.000	.000
[R98L54]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1 M2/1)	.000	.000	-90.000
[R98L55]	MSFC 5881(A53) GAS SUPPLY STRUT (C1F/1 M2/2)	.000	.000	-90.000

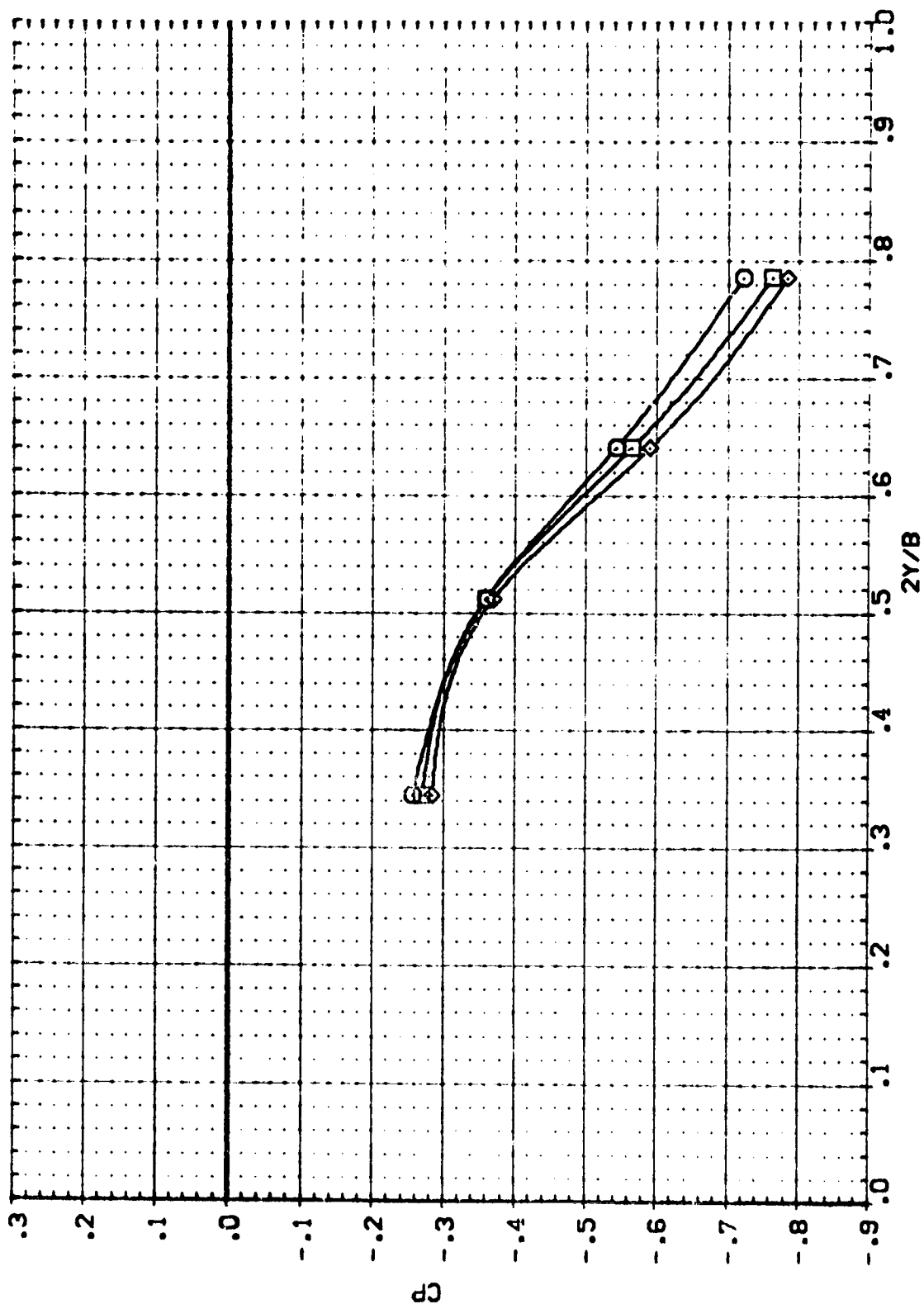


STRUT BUILDUP - ET LOWER MOUNT AND SRB SIDE MOUNT, LOWER WING

MACH = 2.990 ALPHA = .000 X/C = .490

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[RSGUS1]	MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[RSGUS6]	MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 01)	.000	.000	.000
[RSGUS7]	MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 02)	.000	.000	.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

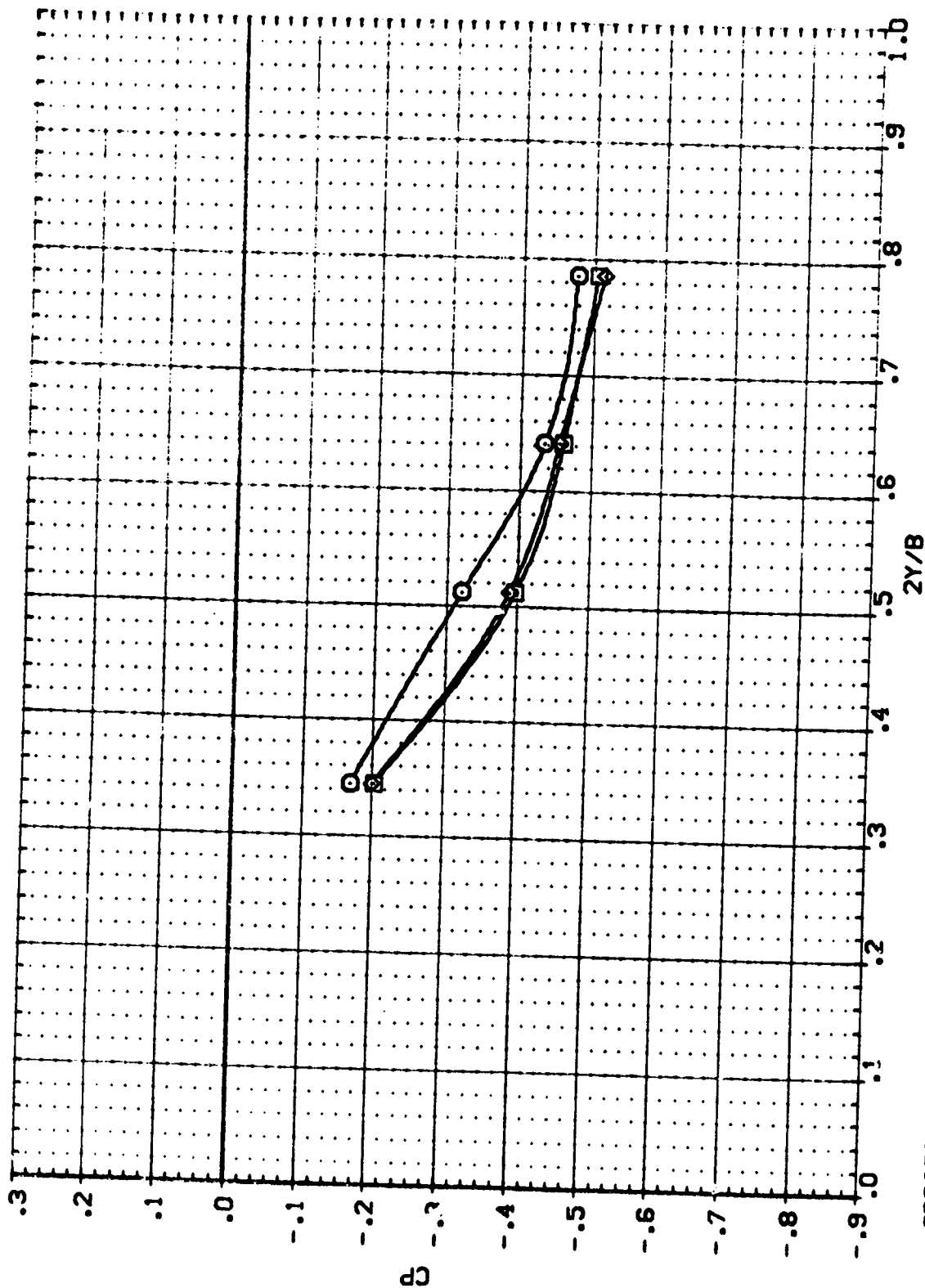
MACH = .905 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[RSGU51]
[RSGU56]
[RSGU57]

MSFC 568(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 568(1A53) GAS SUPPLY STRUT (CIF/1 61)
MSFC 568(1A53) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
.000 .000 .000
.000 .000 .000
.000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

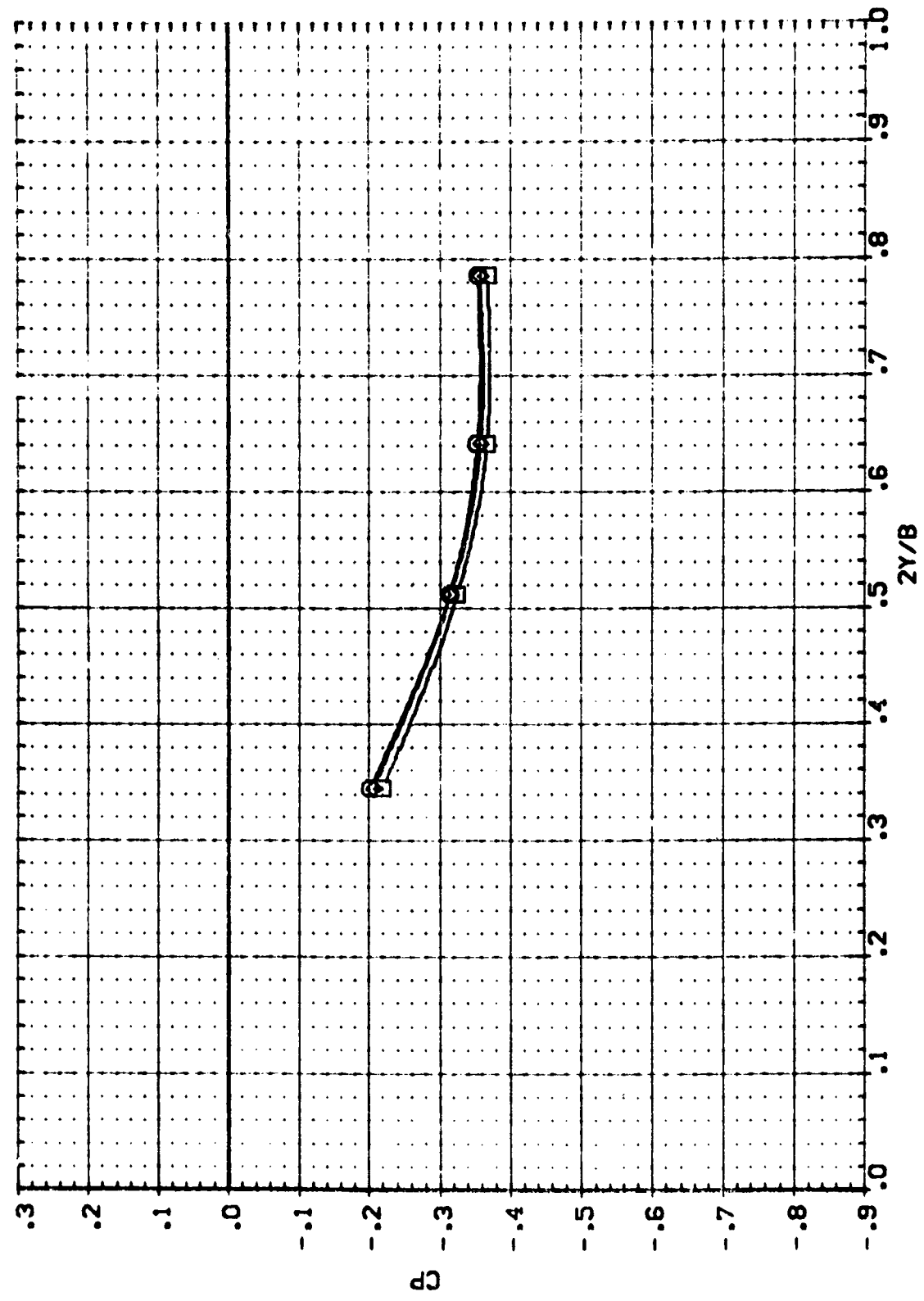
MACH = 1.197 ALPHA = .000 X/C = .491

DATA SET SYMBOL. CONFIGURATION DESCRIPTION

{R86J51}	MSFC 5881AS3	GAS SUPPLY STRUT (CIF/1)
{R86J56}	MSFC 5881AS3	GAS SUPPLY STRUT (CIF/1 61)
{R86J57}	MSFC 5881AS3	GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI

.000	.000	.000
.000	.000	.000



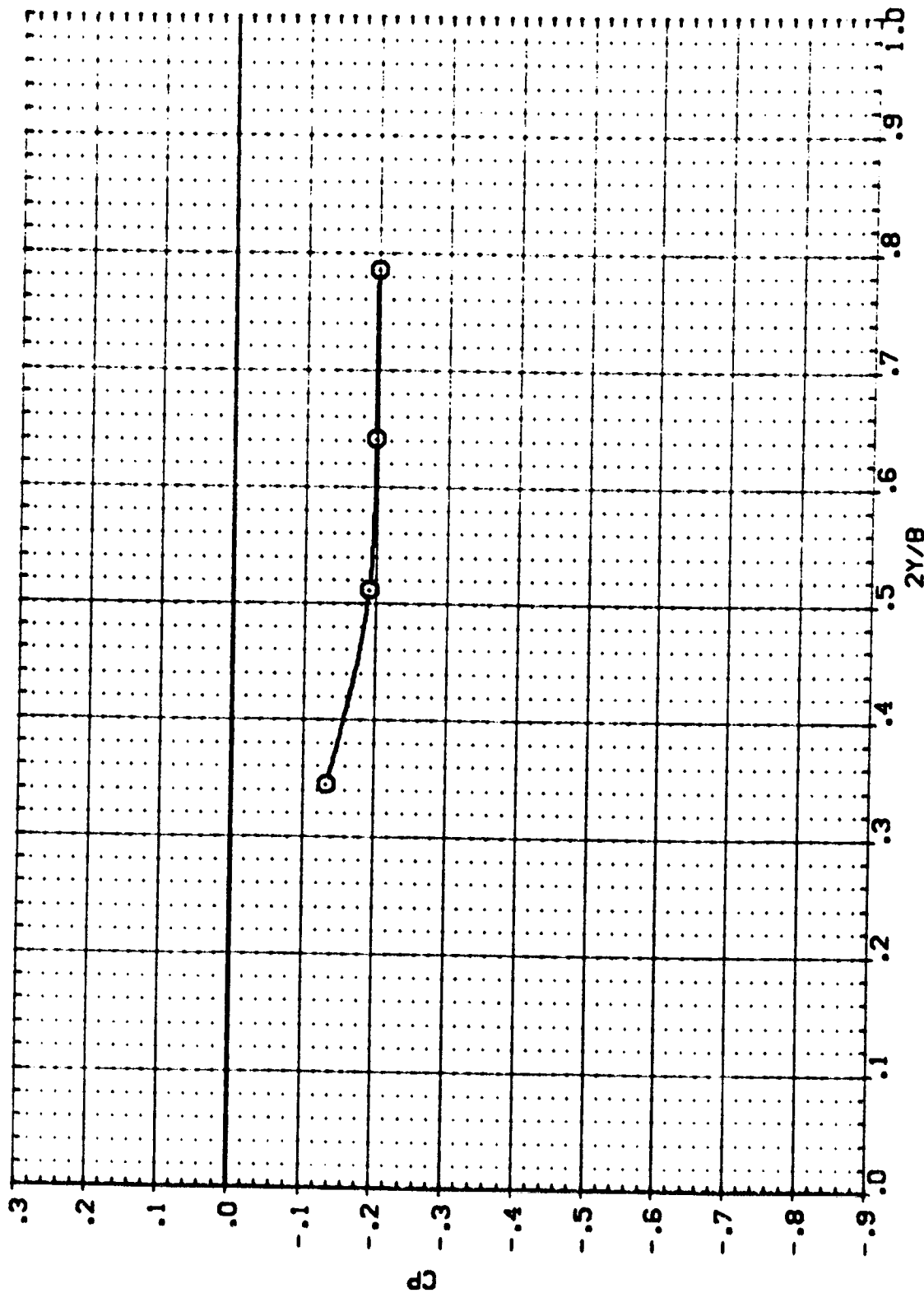
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 1.456 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 91)
 MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)
 MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

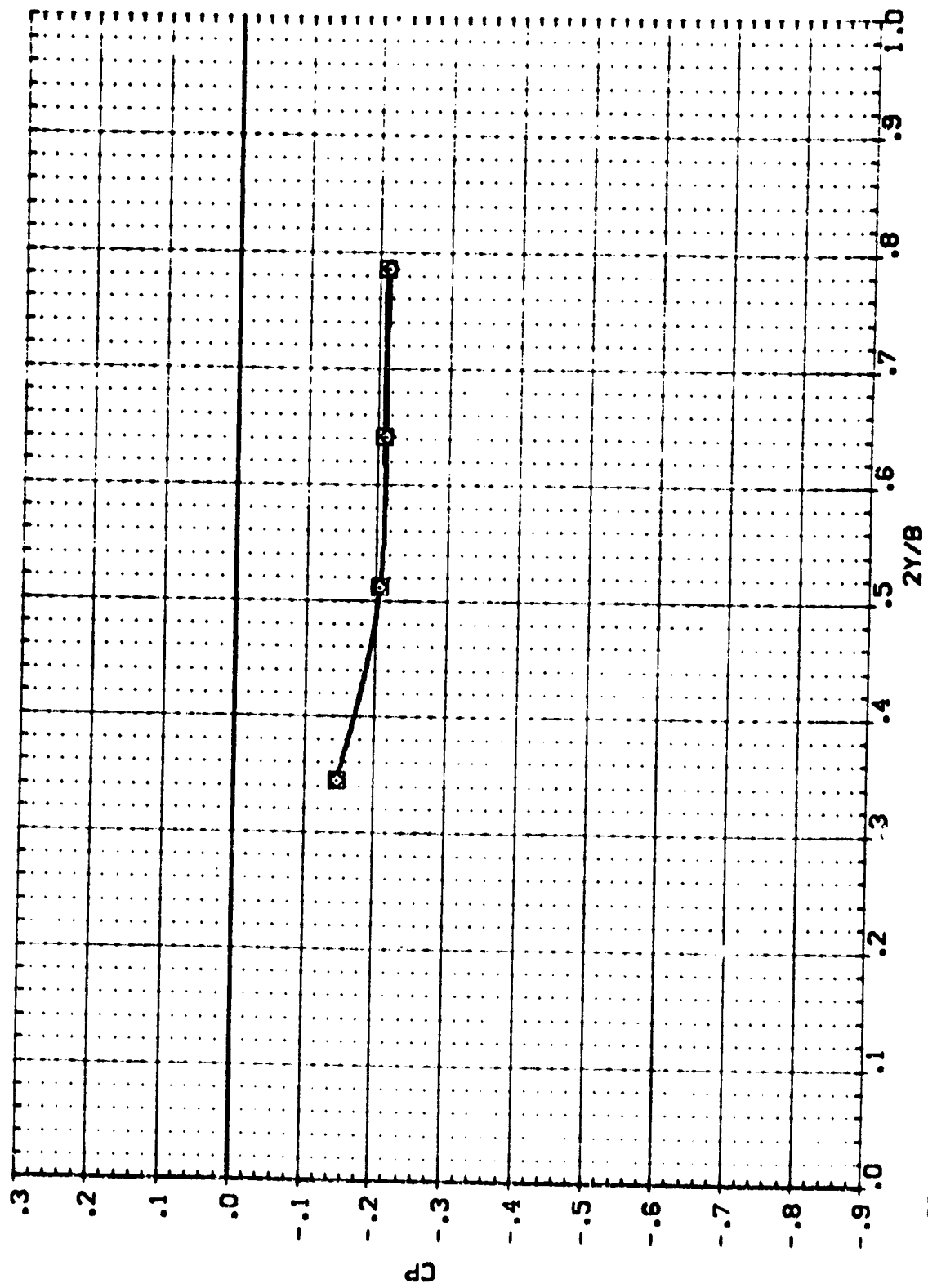
MACH = 1.898 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56L51]
[R56L56]
[R56L57]

MSFC 500(IAS3) GAS SUPPLY STRUT (CIF/1)
MSFC 500(IAS3) GAS SUPPLY STRUT (CIF/1 81)
MSFC 500(IAS3) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
.000 .000 .000
.000 .000 .000
.000 .000 .000



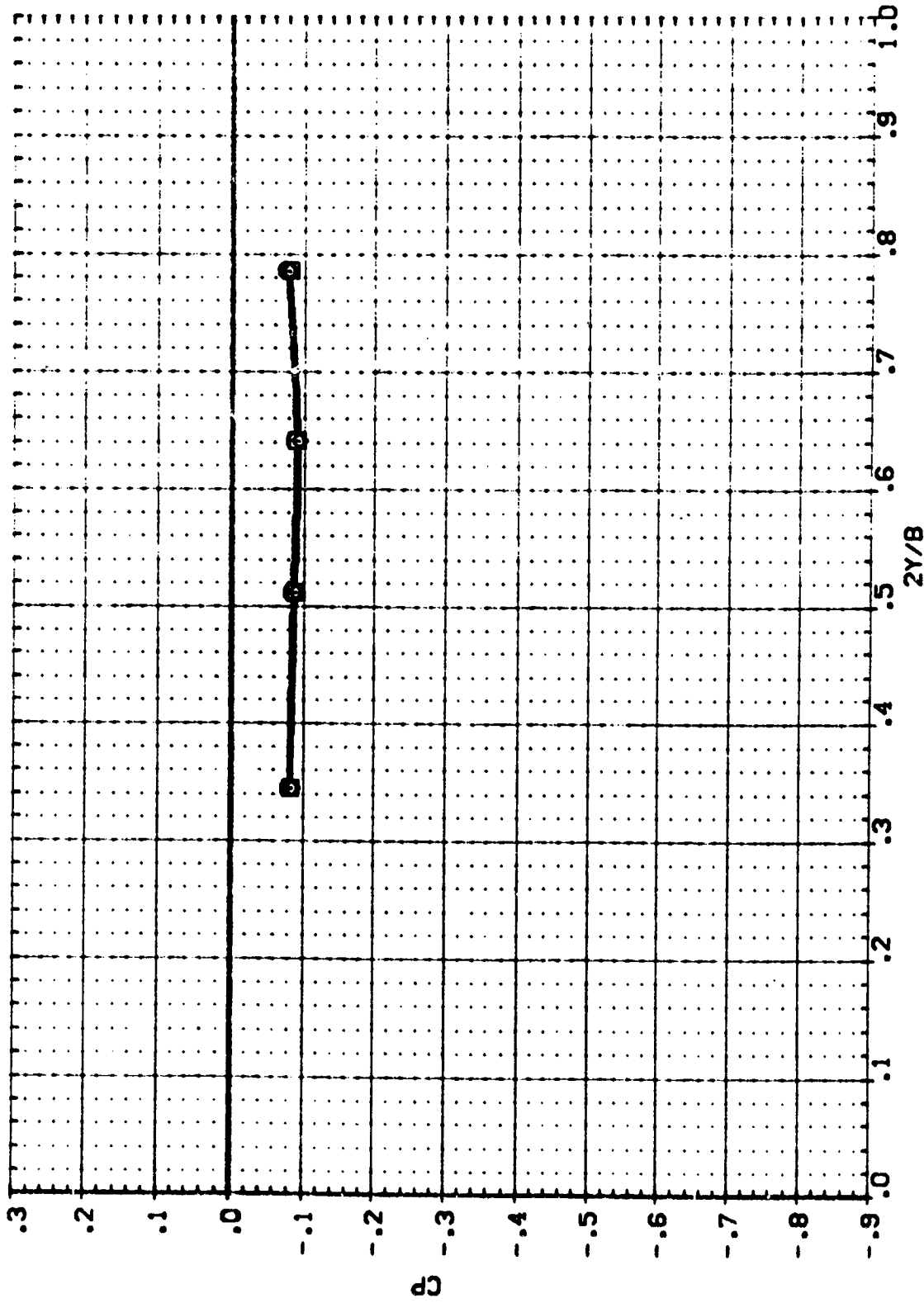
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 1.959 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56L51] H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) 61)
 [R56L52] H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) 61)
 [R56L57] H5FC 588(1A53) GAS SUPPLY STRUT (C1F/1) 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000



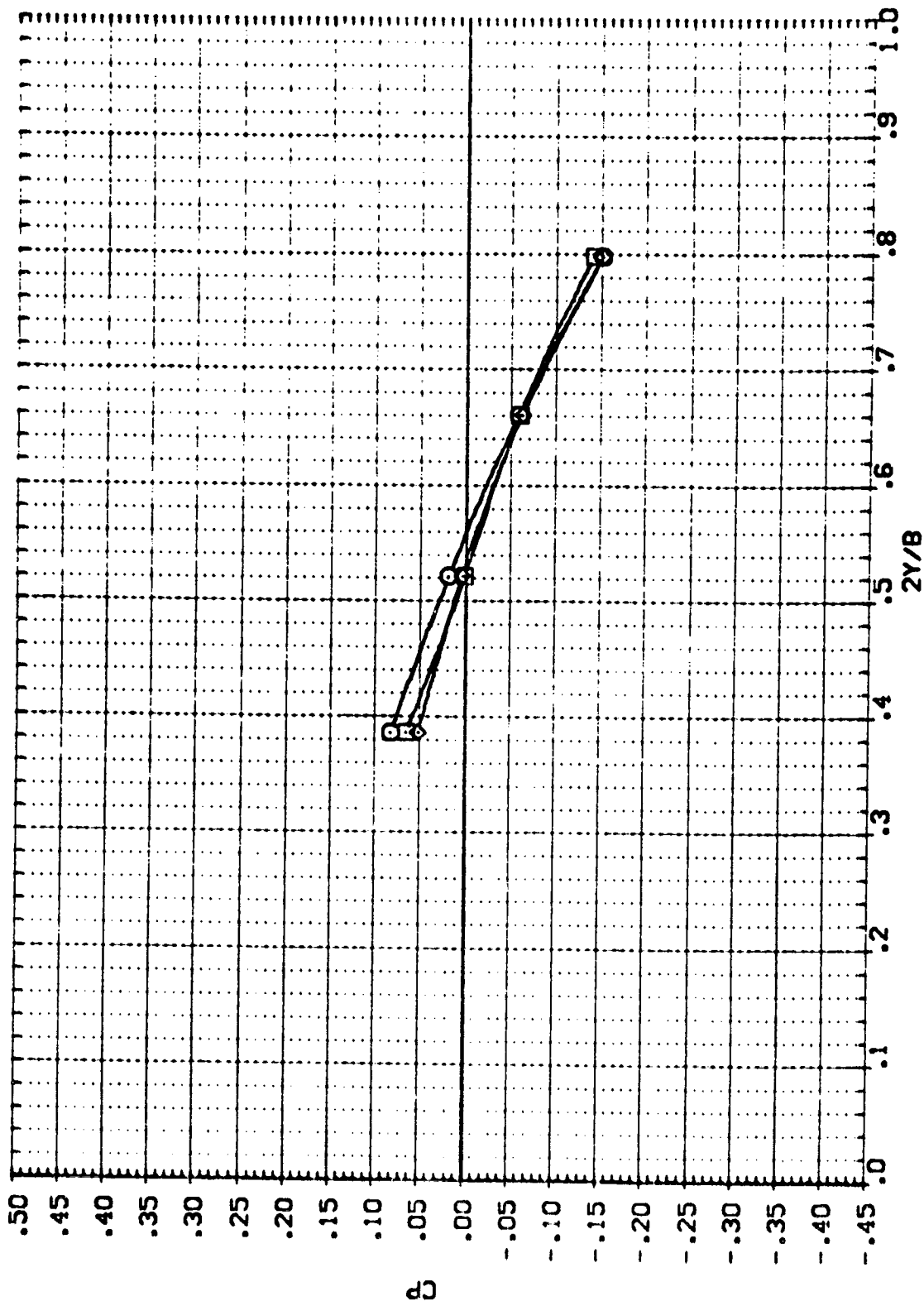
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, UPPER WING

MACH = 2.990 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R56L51) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
 (R56L56) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)
 (R56L57) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000

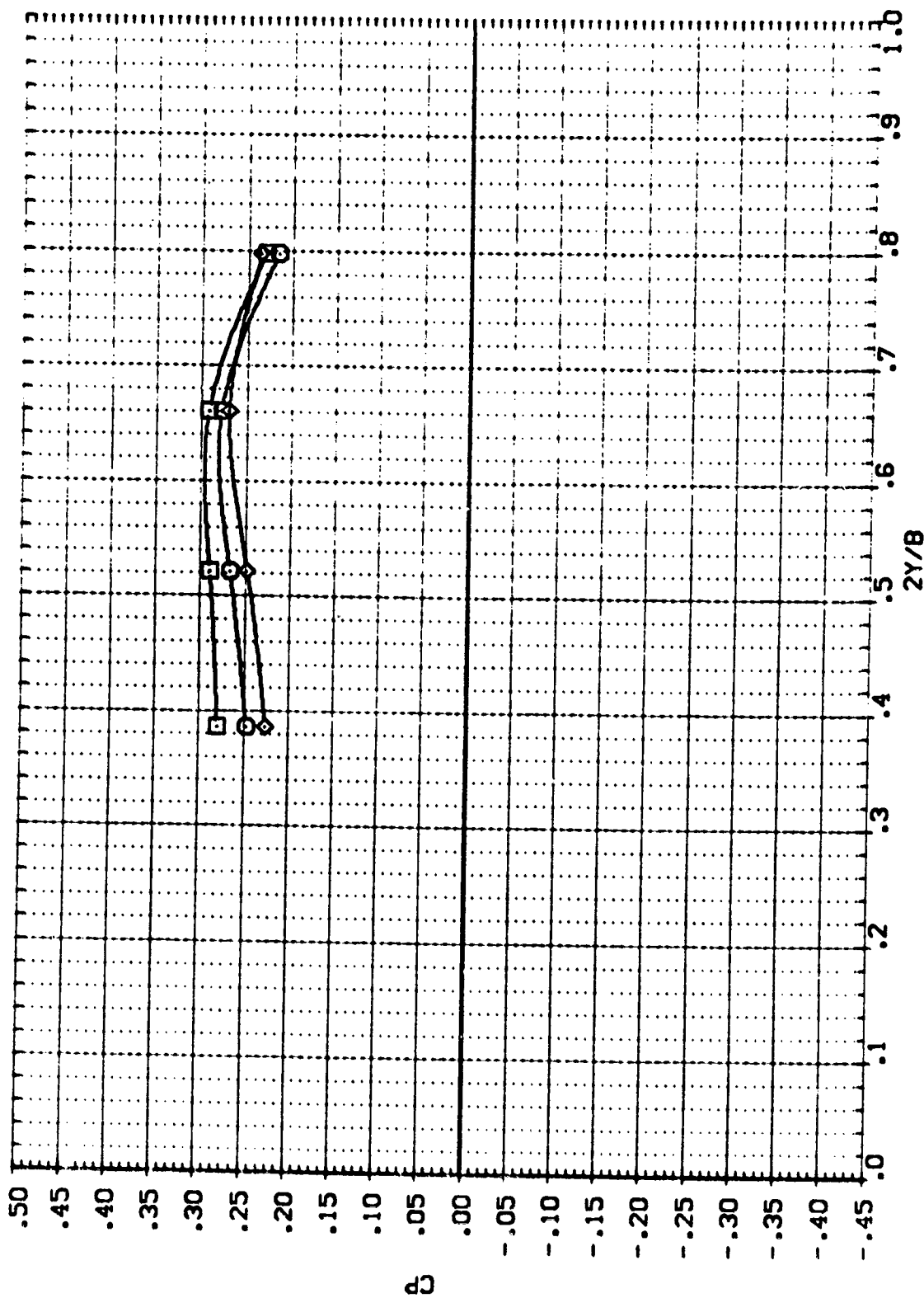


ORBITER / ET AIR SUPPLY FAIRING EFFECTS. LOWER WING

MACH = .905 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

(R56L51)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
(R56L56)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)	.000	.000	.000
(R56L57)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)	.000	.000	.000



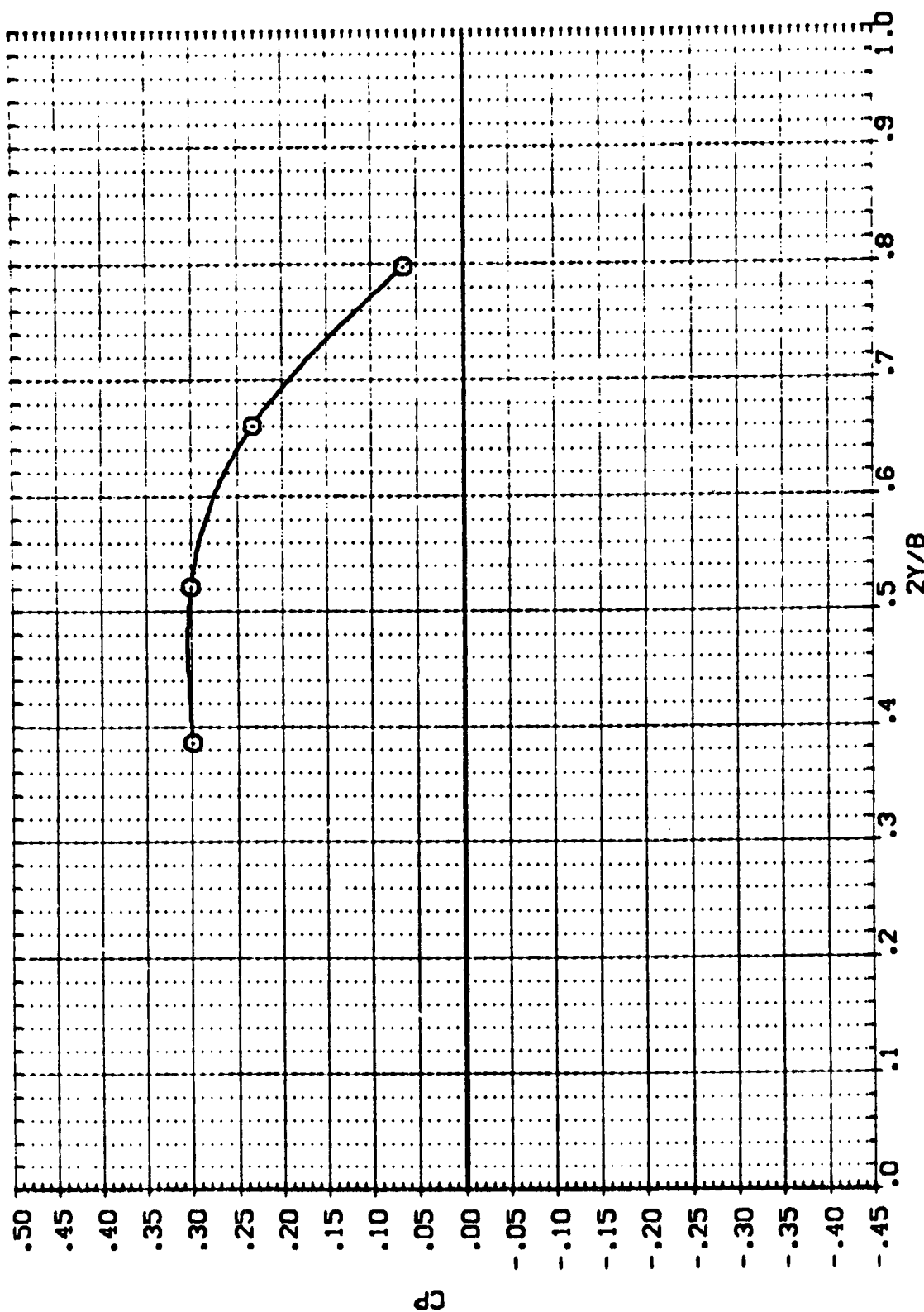
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.197 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R56L51) MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 61)
 (R56L56) MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 61)
 (R56L57) MSC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000
 .000 .000 .000



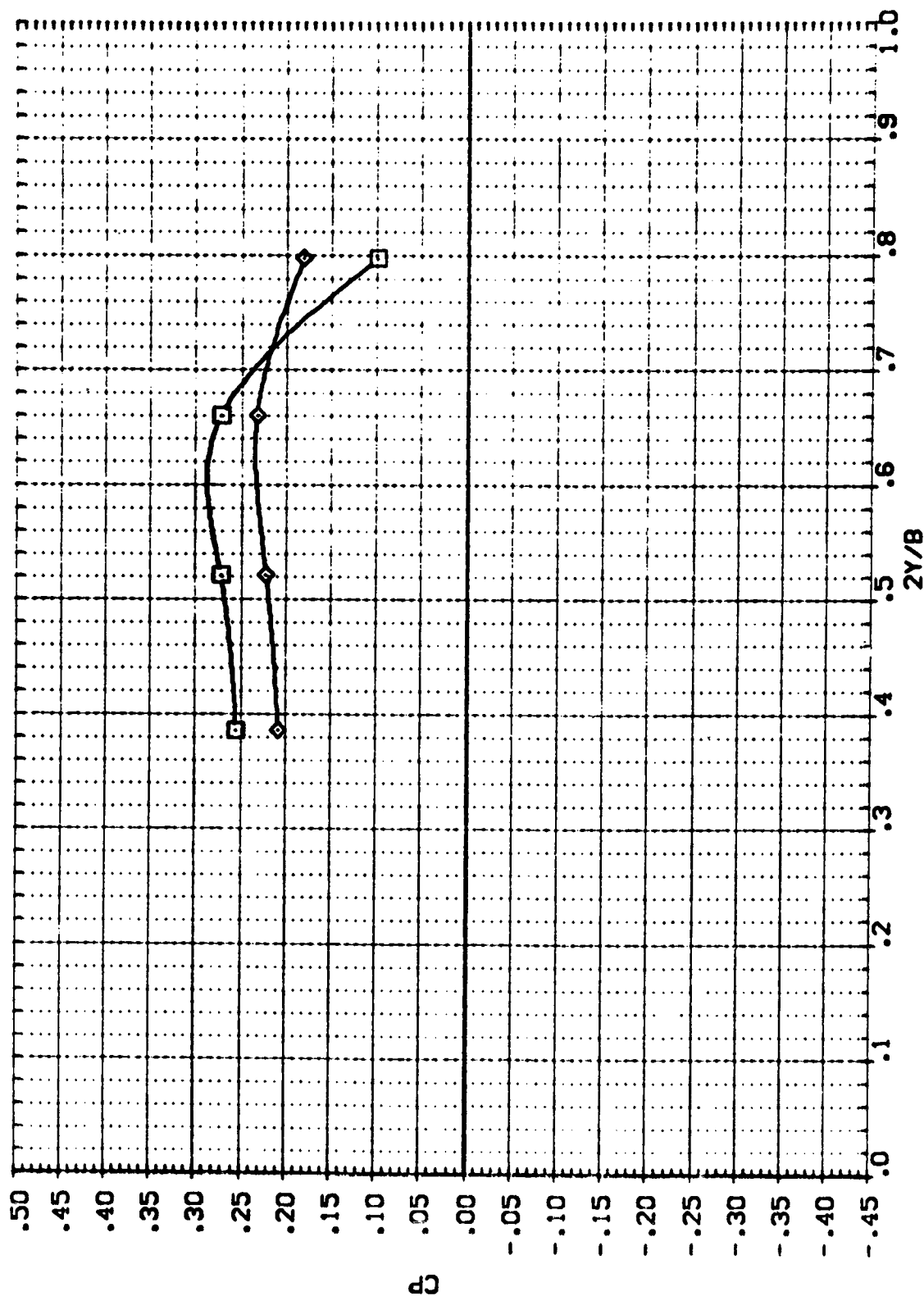
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.898 ALPHA = .000 X/C = .490

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DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R96L51]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R96L56]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)	.000	.000	.000
[R96L57]	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)	.000	.000	.000

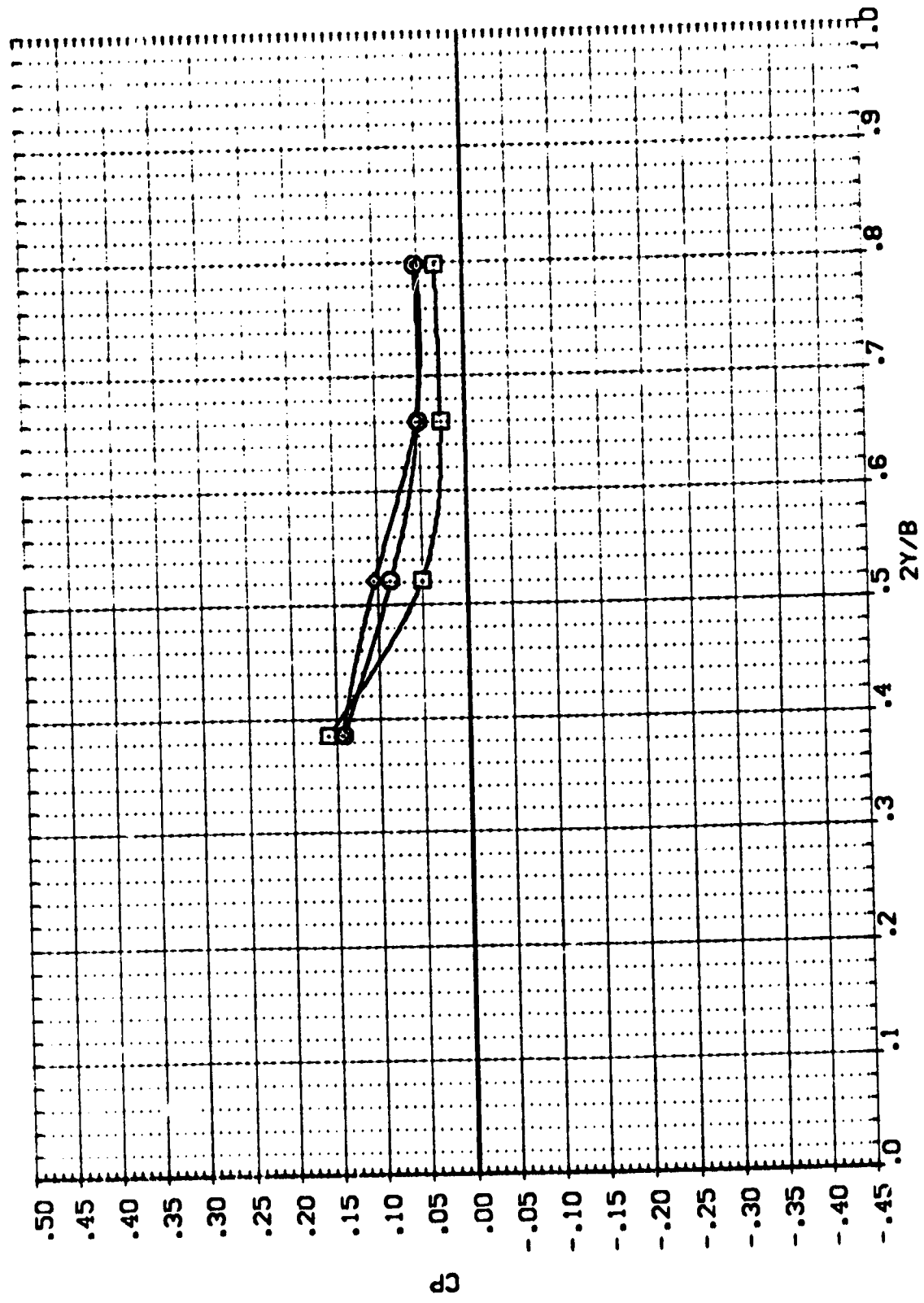


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 1.959 ALPHA = .000 X/C = .490

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION
 [R96L51] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 61)
 [R96L56] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62)
 [R96L57] MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) 62)

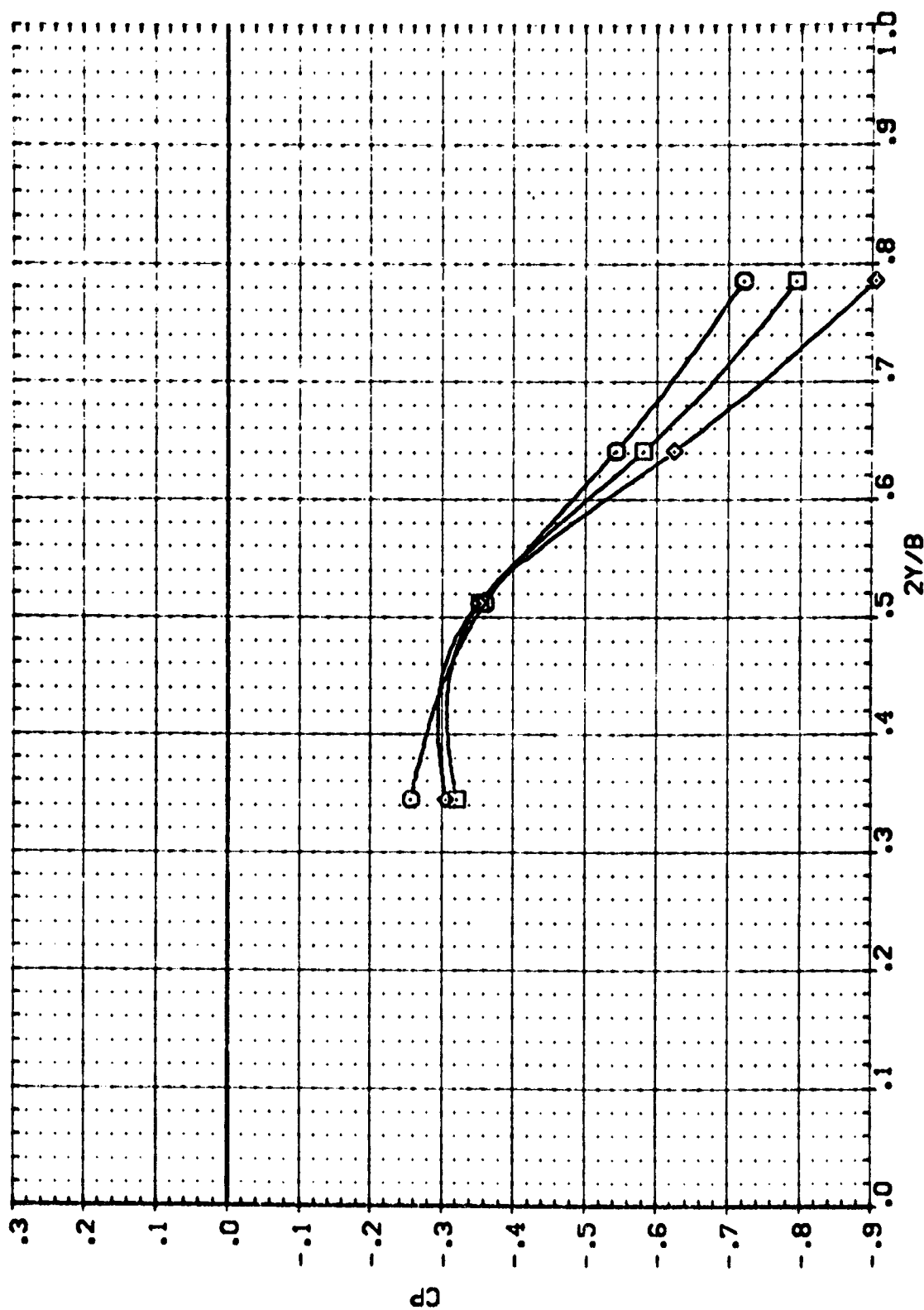


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, LOWER WING

MACH = 2.990 ALPHA = .000 X/C = .490



DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(RSB51)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
(RSB58)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)	.000	.000	-90.000
(RSB55)	MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2)	.000	.000	-90.000

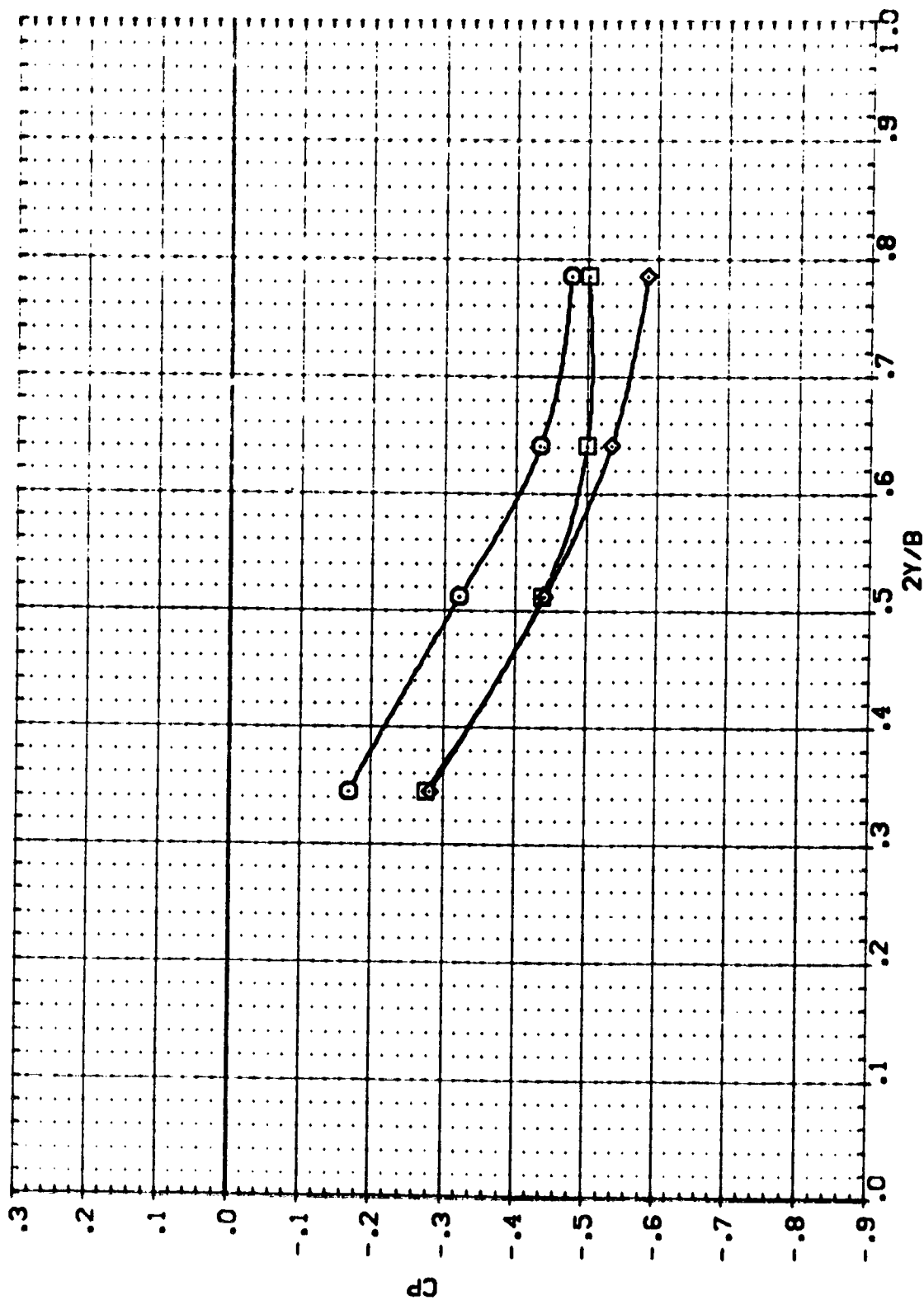


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = .905 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R96U51]	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)	ALPHA	BETA	PHI
[R96U58]	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R96U59]	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)	.000	.000	.000

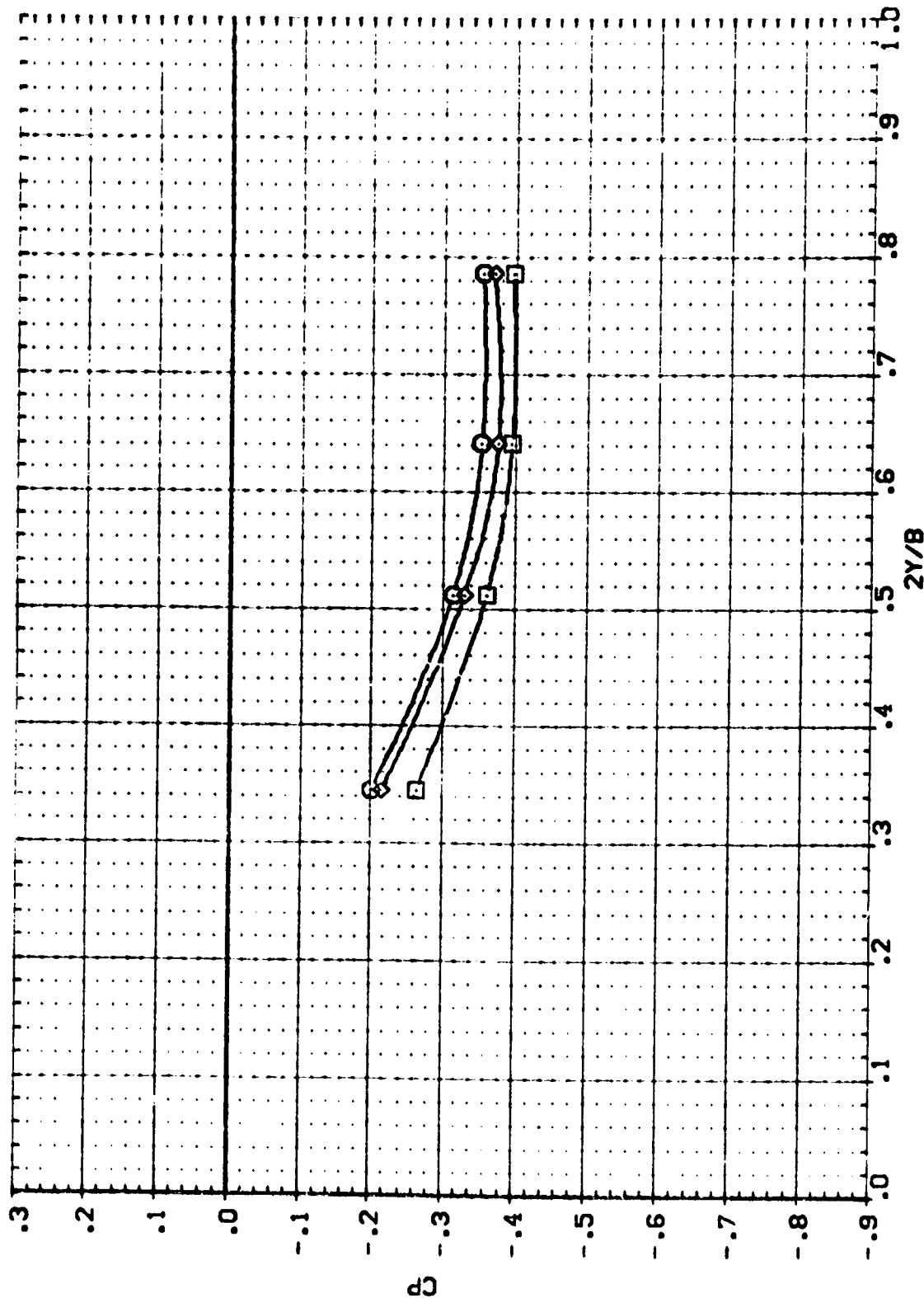


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 1.197 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R96U51)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)	ALPHA	BETA	PHI
(R96U58)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 82 M2/1)	.000	.000	.000
(R96U59)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 82 M2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

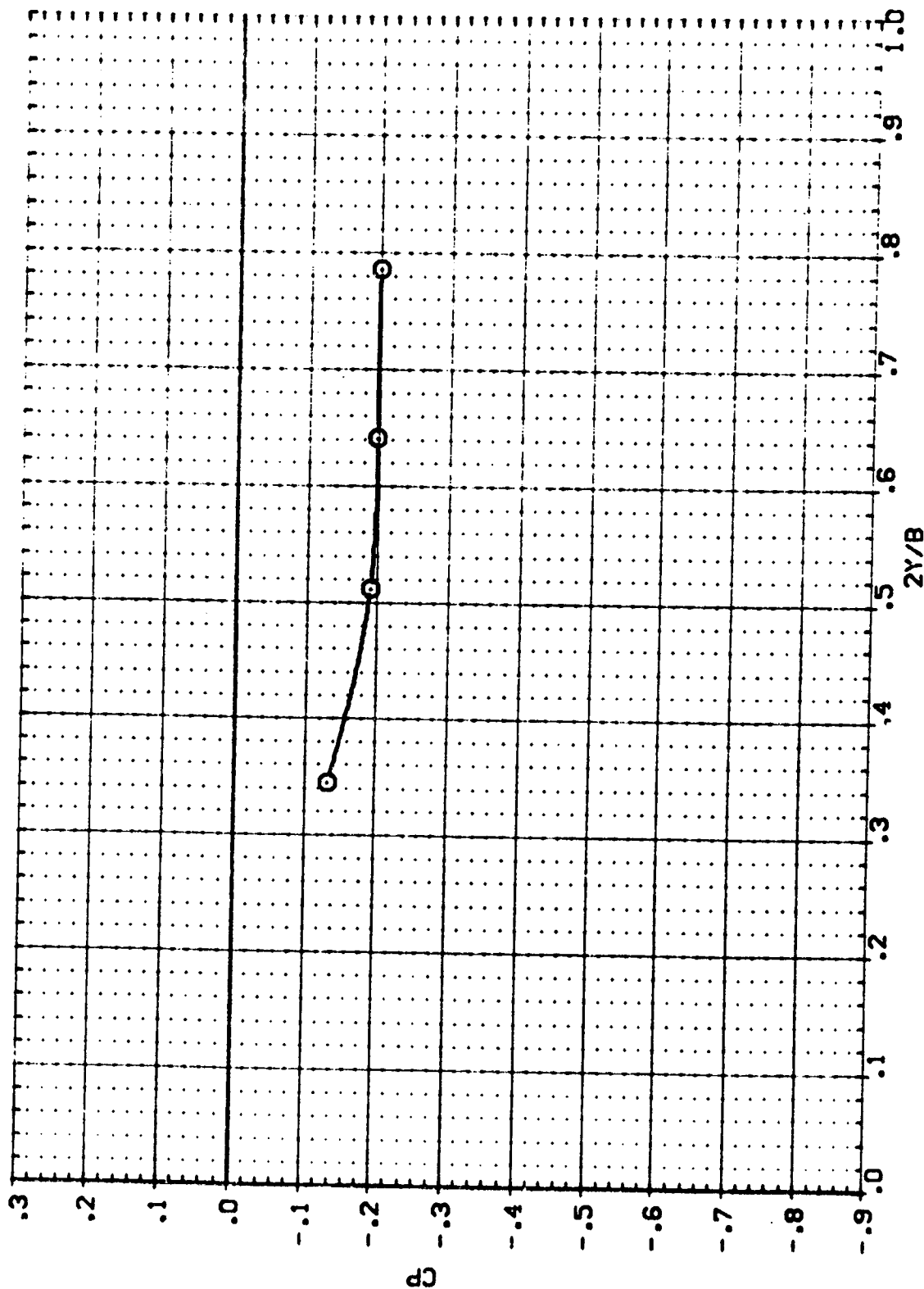
MACH = 1.456 ALPHA = .000 X/C = .491

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56U51]
[R56U52]
[R56U53]

MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) G2 M2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) G2 M2/2)

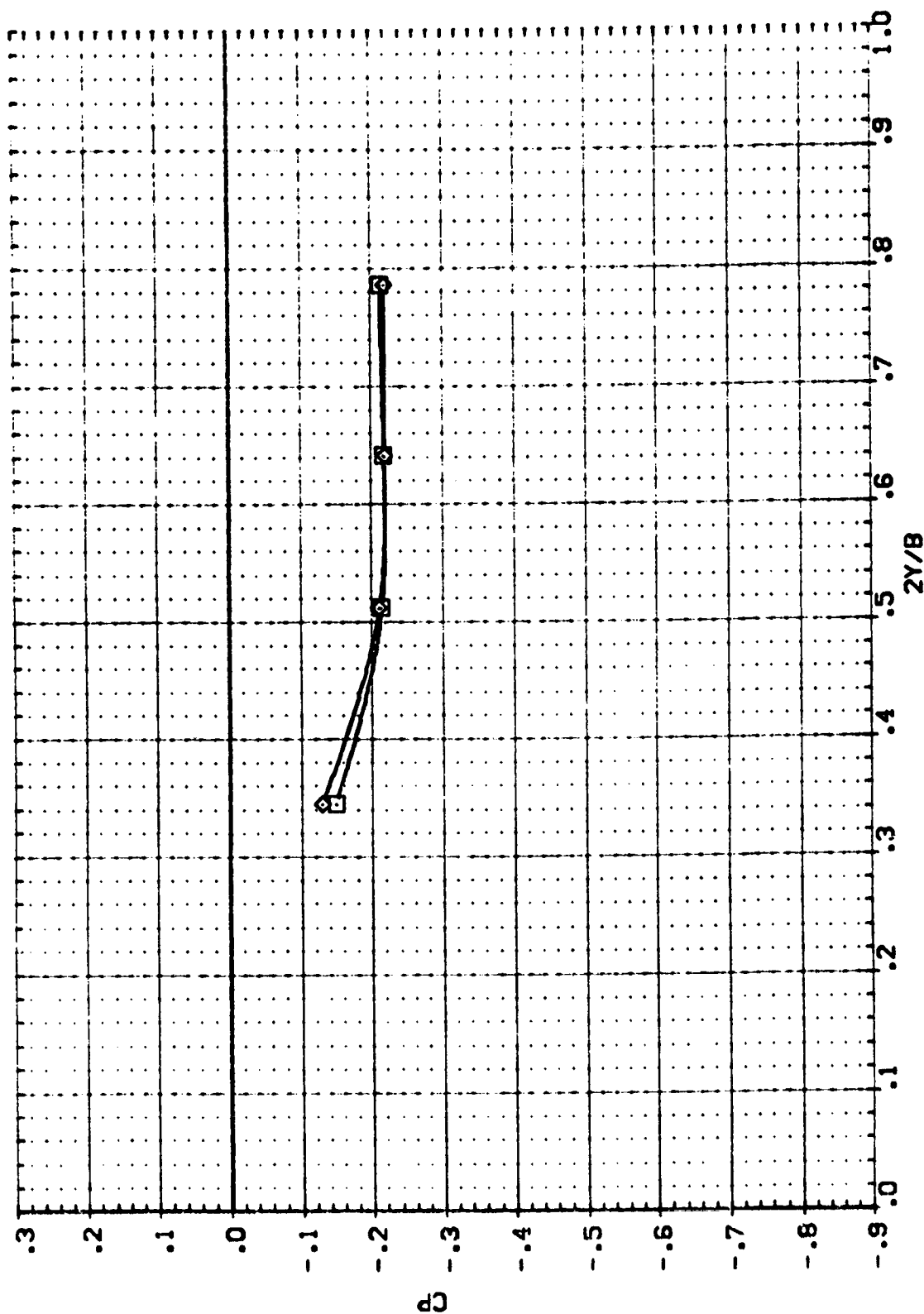
ALPHA BETA PHI
.000 .000 .000
.000 .000 -90.000
.000 .000 -90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

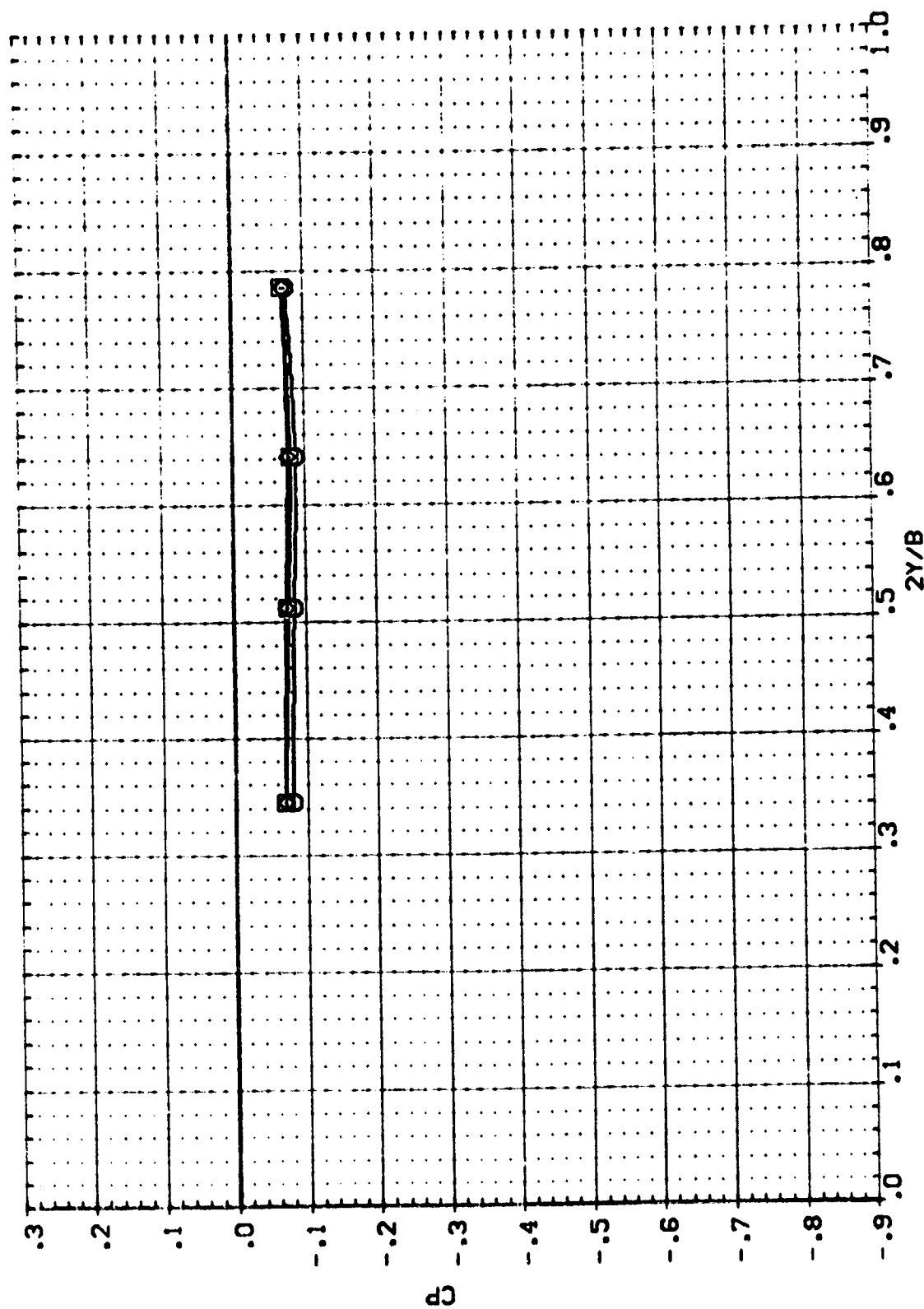
MACH = 1.898 ALPHA = .000 X/C = .491

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
[R96J51]	MSC 5881(A53) GAS SUPPLY STRUT (CIF/1)	.000	.000	.000
[R96J58]	MSC 5881(A53) GAS SUPPLY STRUT (CIF/1) G2 M2/1)	.000	.000	-90.000
[R96J59]	MSC 5881(A53) GAS SUPPLY STRUT (CIF/1) G2 M2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	ALPHA	BETA	PHI
(R56J51)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1)	.000	.000	.000
(R56J52)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62 M2/1)	.000	.000	-90.000
(R56J53)	MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62 M2/2)	.000	.000	-90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, UPPER WING

MACH = 2.952 ALPHA = .000 X/C = .491 PAGE 156

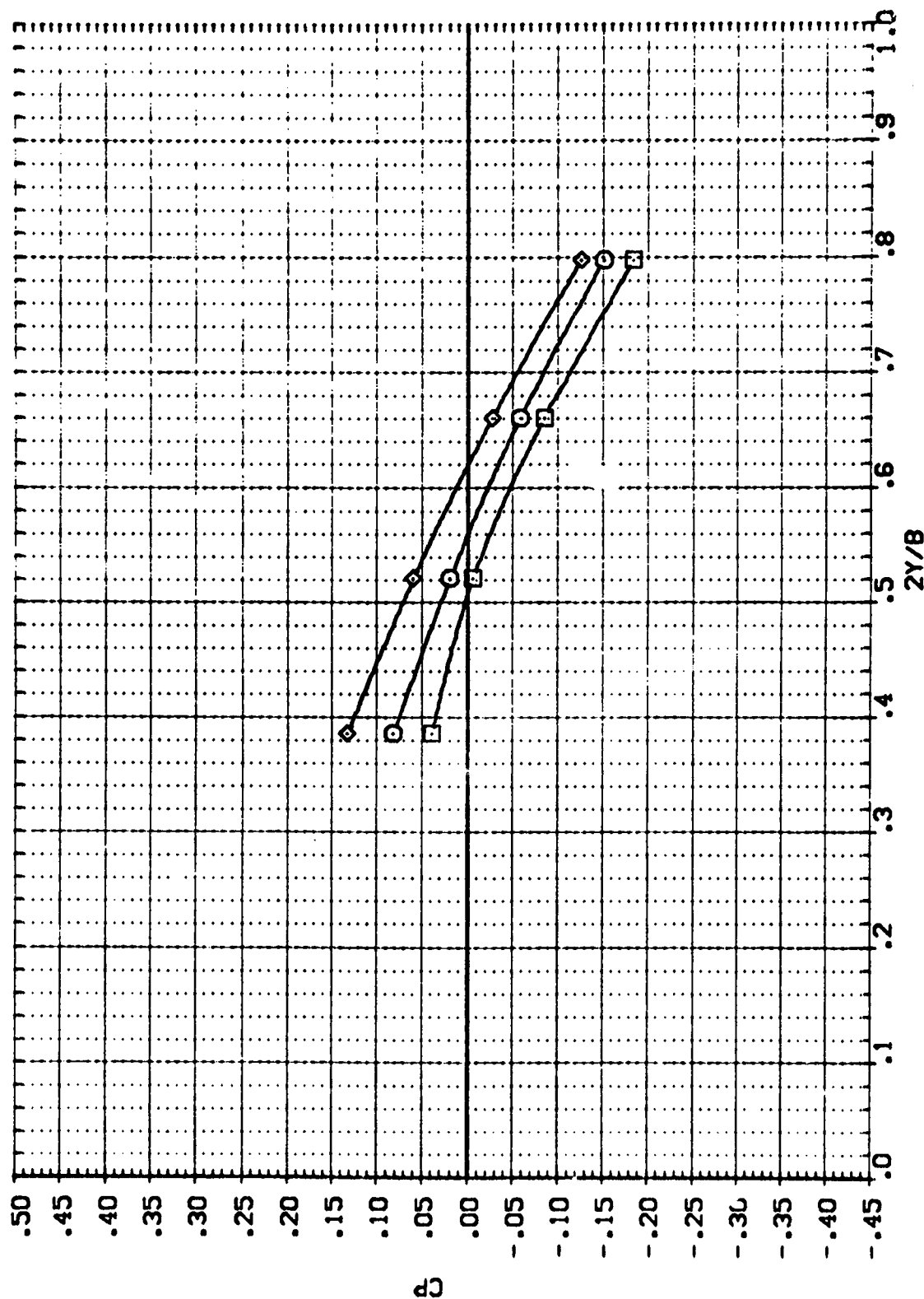


DATA SET SYMBOL CONFIGURATION DESCRIPTION ALPHA BETA PHI

(R98L51) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1) .000 .000 .000

(R98L58) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1) .000 .000 -90.000

(R98L59) MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2) .000 .000 -90.000



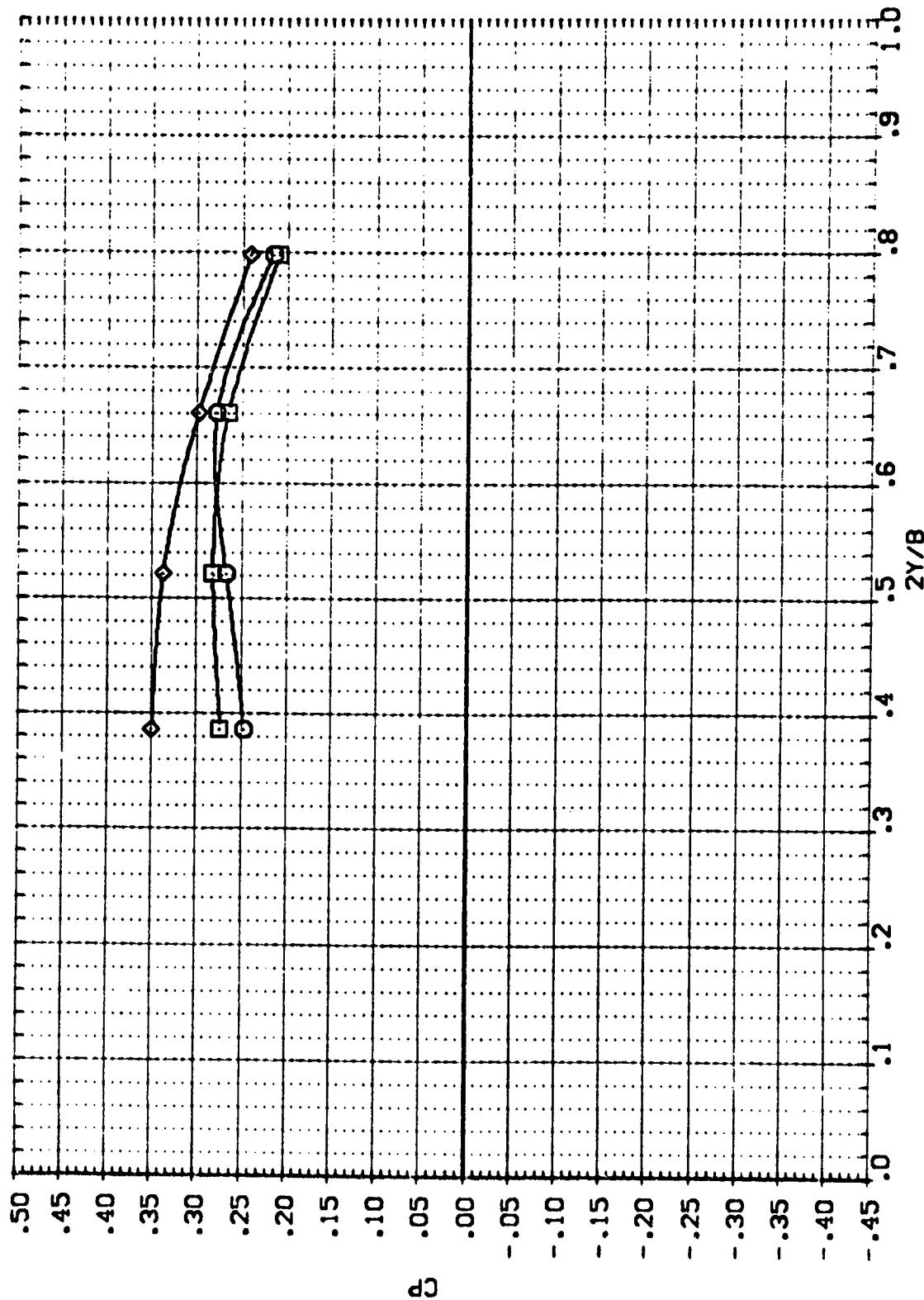
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56L51]
[R56L52]
[R56L53]

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 M2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 M2/2)

ALPHA BETA PHI
.000 .000 .000
.000 .000 -90.000
.000 .000 -90.000



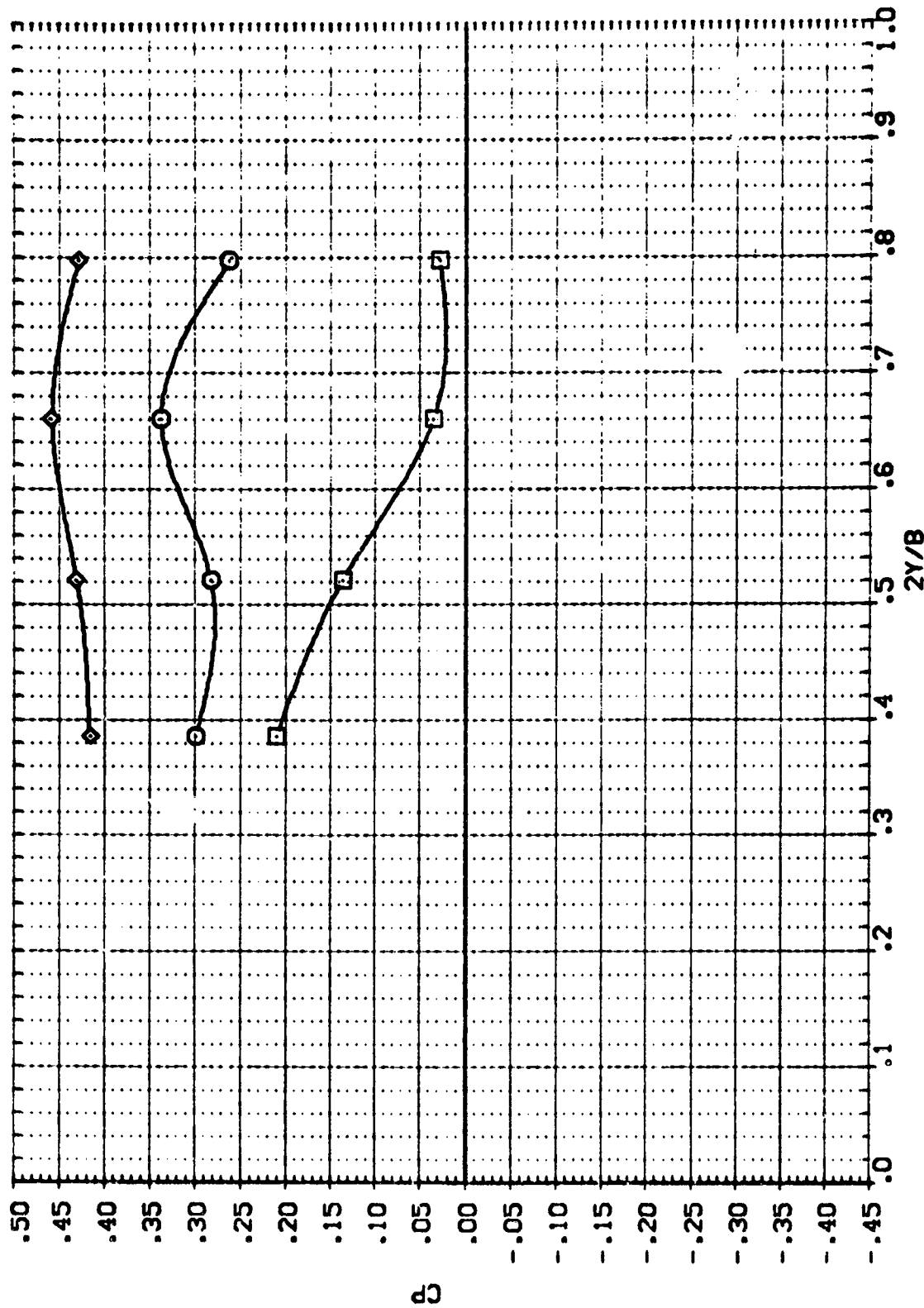
ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 1.197 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R96LS1) MSFC 5881(A53) GAS SUPPLY STRUT (CIF/1) G2 M2/1)
 (R96LSB) MSFC 5881(A53) GAS SUPPLY STRUT (CIF/1 G2 M2/1)
 (R96LS3) MSFC 5881(A53) GAS SUPPLY STRUT (CIF/1 G2 M2/2)

ALPHA BETA PHI
 .000 .000 .000
 .000 .000 -90.000
 .000 .000 -90.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

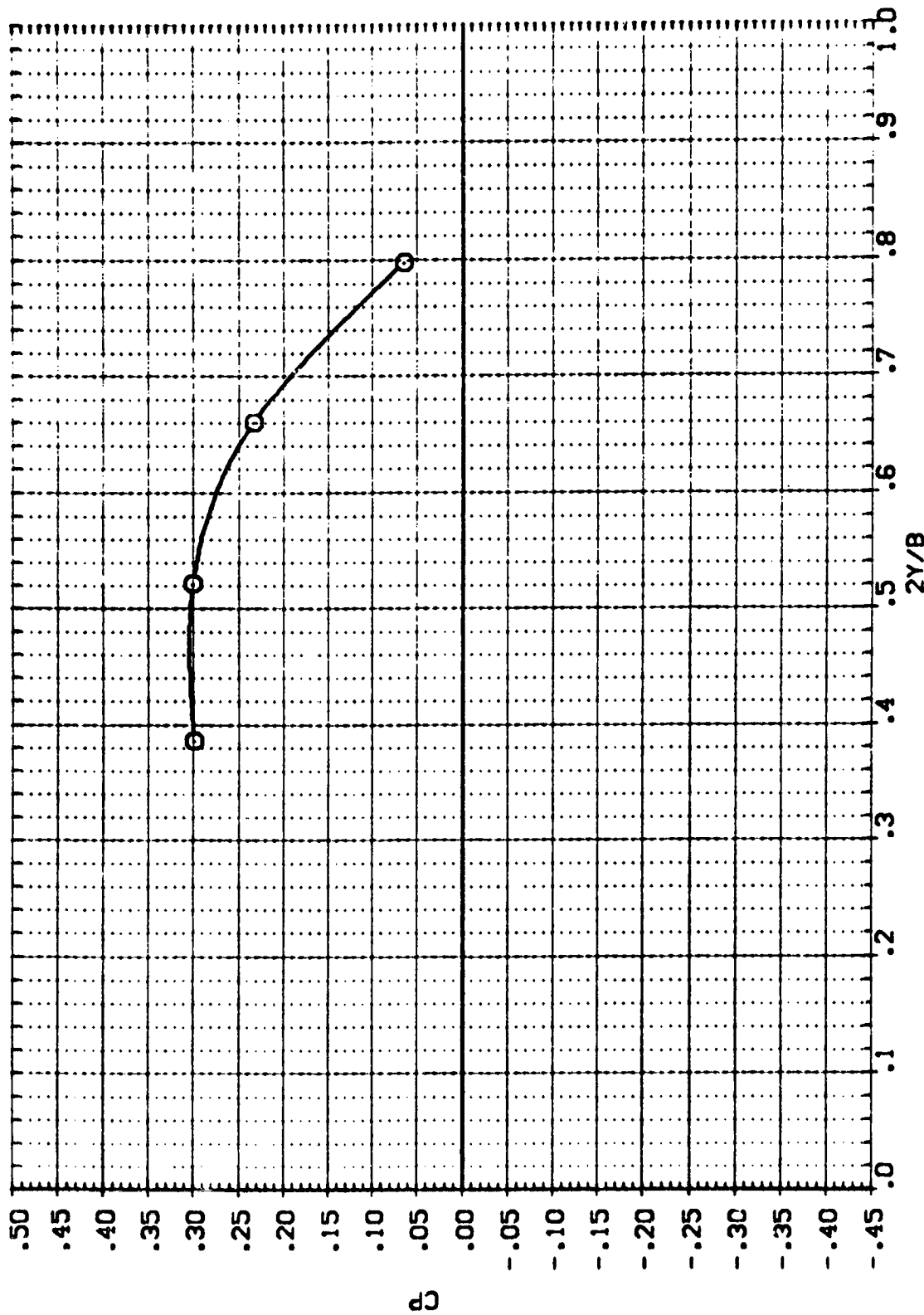
MACH = 1.456 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(R96L51)
(R96L52)
(R96L53)

MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 62 M2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 62 M2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1) 62 M2/2)

ALPHA BETA PHI
.000 .000 .000
.000 .000 .000
.000 .000 .000

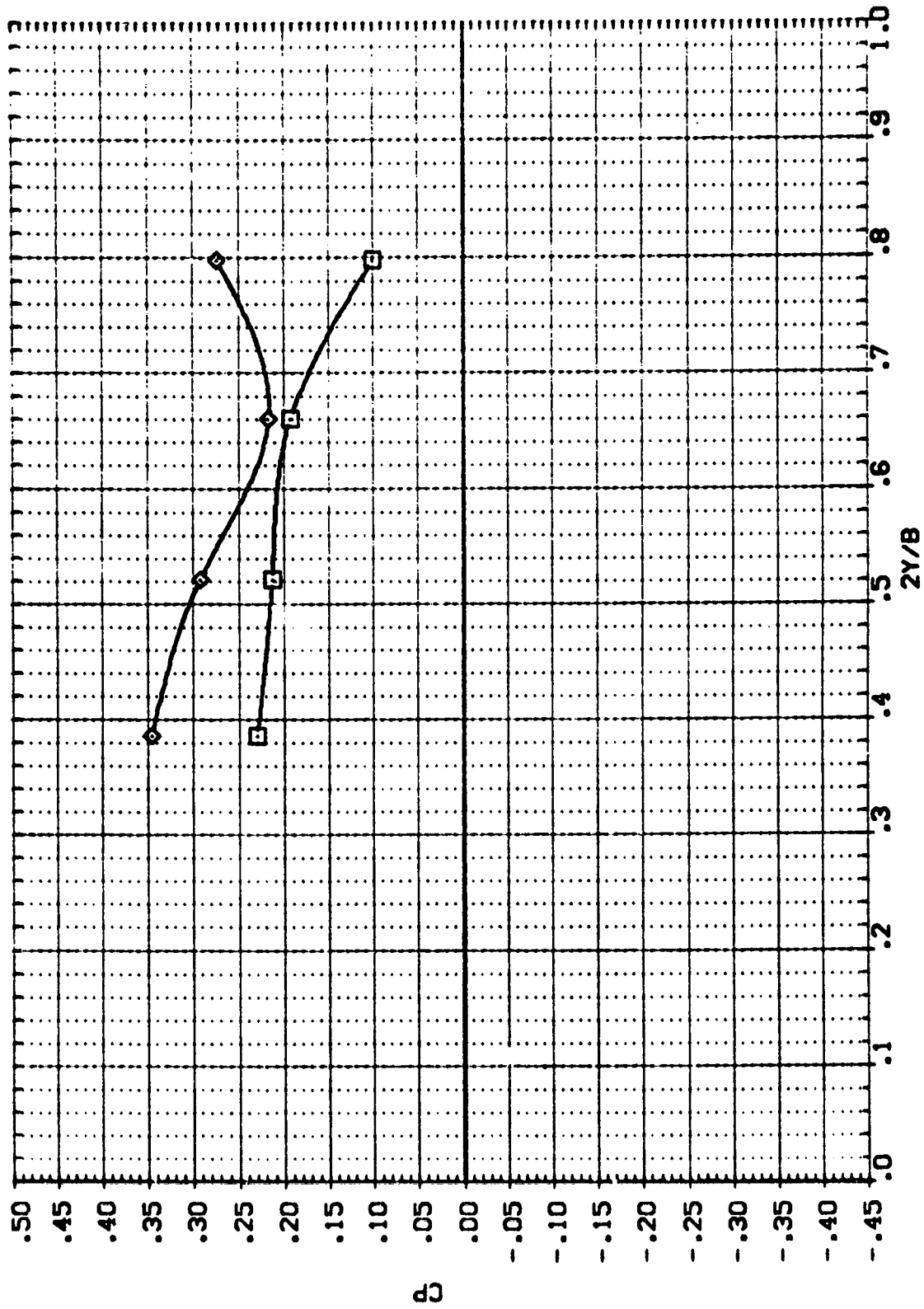


ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 1.898 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RSEL1)	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1)	ALPHA	BETA	PHI
(RSEL2)	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1 62 M2/1)	.000	.000	.000
(RSEL3)	MSFC 588(1A53)	GAS SUPPLY STRUT (CIF/1 62 M2/2)	.000	.000	.000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

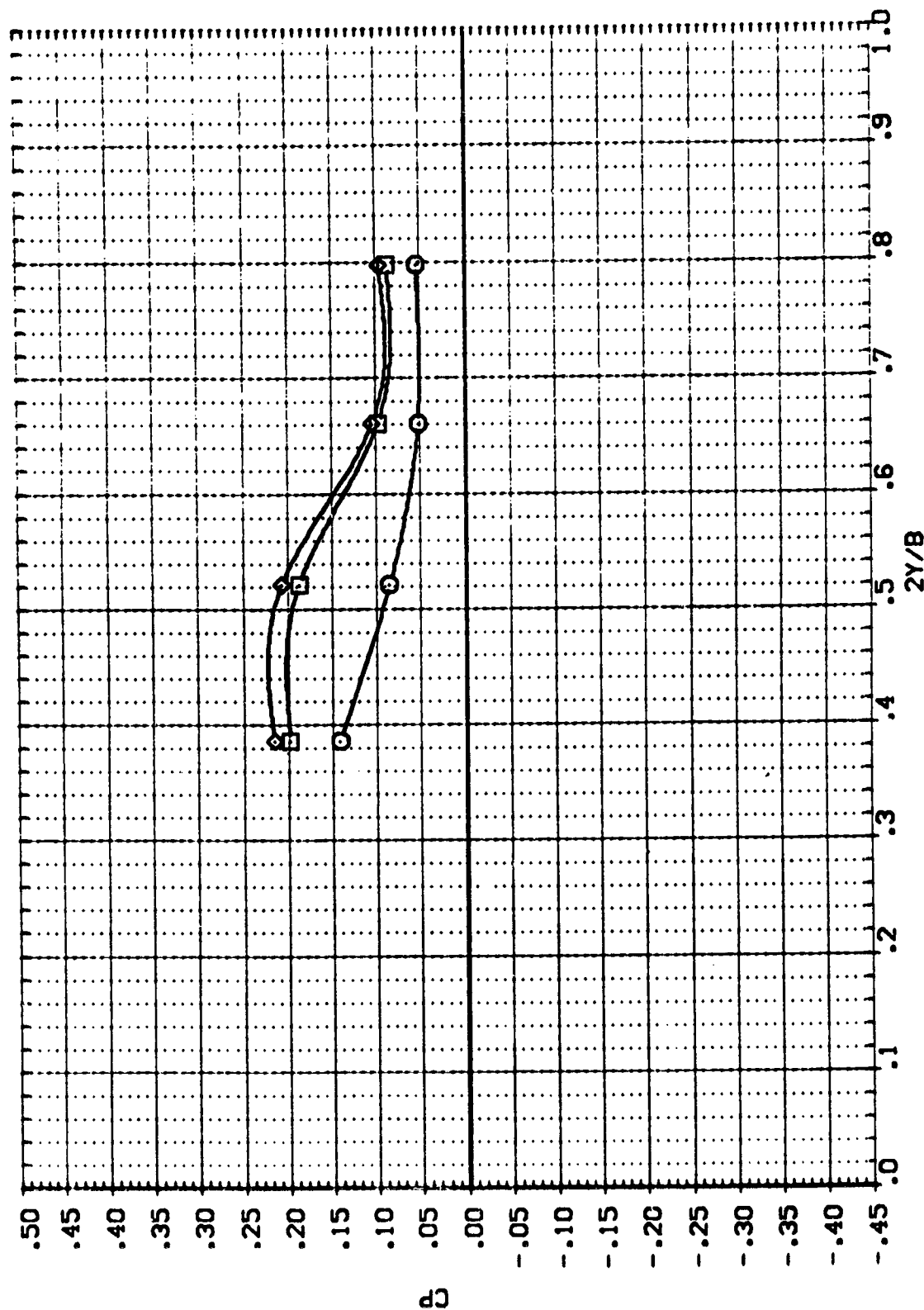
MACH = 1.958 ALPHA = .000 X/C = .490

DATA SET SYMBOL CONFIGURATION DESCRIPTION

[R56L51]
[R56L58]
[R56L59]

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 H2/1)
MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 H2/2)

ALPHA BETA PHI
.000 .000 .000
.000 .000 .000
.000 .000 .000



ORBITER / ET AIR SUPPLY FAIRING EFFECTS, WITH SRB SIDE MOUNT, LOWER WING

MACH = 2.990 ALPHA = .000 X/C = .490 PAGE 162

APPENDIX

TABULATED SOURCE DATA

FORCE DATA

Tabulations of plotted data are available on request from
Data Management Services.

DATE 10 OCT 74

TABULATED SOURCE DATA, NSFC TWT 500 - 1A53

PAGE 1

MSFC 500 (1A53) GAS SUPPLY STRUT (C1F/1)

(R96001) (21 FEB 74)

REFERENCE DATA

MEF =	6.1960 IN.	YMP =	.0000 IN.
LEF =	5.3130 IN.	LYP =	.0000 IN.
ZMEF =	5.3130 IN.	ZLYP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 1001/ 0 RN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

NAME	ALPHA	CPB1	CPB2	CPB3	CPB4	CADO	CABS	CABT
GRADIENT	.0000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
.904	.000	-.22040	-.22670	-.20900	-.19960	.03280	.02470	.06170

RUN NO. 1002/ 0 RIN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1015/ 0 BN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1016/ 0 RWL = 7.15 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1025/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 308(1A53) GAS SUPPLY STRUT (CIF/1 M1/1)

(R96002) (21 FEB 74)

REFERENCE DATA

REF = 6.1900 IN YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. YMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

RUN NO. 1004/ 0 RN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
.905	.000	-.21510	-.21870	-.20830	-.20000	.03240	.02350	.03000
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1003/ 0 RN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.200	.000	-.26790	-.27690	-.28620	-.27900	.04370	.03210	.05630
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1014/ 0 RN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.483	.000	-.27060	-.25960	-.25100	-.23060	.03960	.02570	.03900
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1017/ 0 RN/L = 6.96 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.961	.000	-.23390	-.24070	-.22180	-.22630	.03530	.02070	.02280
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1024/ 0 RN/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
2.990	.000	-.09720	-.09800	-.09350	-.09120	.01460	.00770	.00740
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 588 (1A53) GAS SUPPLY STRUT (C1F/1 M2/1)

(A96004) (21 FEB 74)

REFERENCE DATA

BREF = 8.1980 82. IN 2MRP = .0000 IN.
 LREF = 5.3130 IN. 1MRP = .0000 IN.
 BREF = 5.3130 IN. 2MRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 1030/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
.897	.000	-.22170	-.22220	-.20590	-.20170	.03260	.02270	.06690
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1031/ 0 RN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.206	.000	-.31620	-.30060	-.29300	-.28630	.04590	.03190	.05770
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1032/ 0 RN/L = 6.44 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.464	.000	-.25820	-.24510	-.24230	-.24310	.03800	.02490	.07960
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1035/ 0 RN/L = 7.00 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
1.950	.000	-.22820	-.23310	-.21170	-.21880	.03400	.01920	.02130
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1026/ 0 RN/L = 4.59 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
2.990	.000	-.08830	-.09130	-.08600	-.08380	.01340	.00700	.00280
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 300 (1A53) GAS SUPPLY STRUT (C1F/1 W2/2)

(R96005) (21 FEB 74)

REFERENCE DATA

1MPT =	6.1990 IN.	1MPT =	.0000 IN.
1MPT =	5.3130 IN.	1MPT =	.0000 IN.
2MPT =	5.3130 IN.	2MPT =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

RUN NO. 1042/ 0 AN/L = 0.22 GRADIENT INTERVAL = -5.00/ 5.00

NAME	ALPHA	CPB1	CPB2	CPB3	CPB4	CAB0	CAB5	CAB7
GRADIENT	.0000	.00000	.00000	.00000	.00000	.00000	.00000	.00000
SMACH	.901	-.23110	-.25040	-.25110	-.22230	.03600	.02560	.07090

RUN NO. 1043/ 0 RM/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	CF81	CF82	CF83	CF84	CABO	CABS	CABT
MACH	.000	-.29890	-.30570	-.29560	-.26470	.04500	.02950	.03700
1.199		.00000	.00000	.00000	.00000	.00000	.00000	.00000
GRADIENT								

RUN NO. 1038/ 0 RN/L = 6.45 GRADIENT INTERVAL : -5.00/ 5.00

[illegible]

RUN NO. 1037/ 0 RVL = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

	MACH	ALPHA	CFB1	CFB2	CFB3	CFB4	CABO	CABS	CART
	1.949	.000	-.23220	-.24270	-.21190	-.22010	.03443	.01920	.01680
		GRADIENT	.00000	.30000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1044/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

(296006) (21 FEB 74)

REFERENCE DATA

REF =	0.190 IN	REF =	.0000 IN.
REF =	3.3150 IN.	REF =	.0000 IN.
REF =	3.3150 IN.	REF =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 1008/ 0 RN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1007/ 0 RM/L = 6.62 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CFB1	CFB2	CFB3	CFB4	CABG	CABS	CART
1.195	.000	-.33380	-.31753	-.31600	-.31470	.04930	.03240	.05970
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1012/ 0 RN/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1019/ 0 AN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	CFE1	CFE2	CFE3	CFE4	CABO	CAB5	CAB7
GRADIENT	.000	-.21360	-.20800	-.21020	-.20910	.03250	.02020	.02120
NACH	1.958					.00000	.00000	.00000

RUN NO. 1022/ 0 RM/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

WSC 300 (1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1) (R96008) (21 FEB 74)

REFERENCE DATA

REF 3 0.1680 IN XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 1029/ 0 RN/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABG	CABS	CABT
.904	.000	-.22440	-.22540	-.21080	-.20660	.03920	.02230	.06600
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1028/ 0 RN/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABG	CABS	CABT
1.196	.000	-.32500	-.30720	-.30130	-.29410	.04710	.03210	.05740
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1033/ 0 RN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABG	CABS	CABT
1.453	.000	-.25430	-.24700	-.24740	-.23960	.03610	.02530	.03900
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1034/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABG	CABS	CABT
1.957	.000	-.23400	-.24720	-.21510	-.22270	.03490	.01930	.01940
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1027/ 0 RN/L = 4.57 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABG	CABS	CABT
2.990	.000	-.08750	-.09050	-.08680	-.08310	.01340	.00710	.00180
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 508(1A53) GAS SUPPLY STRUT (C1F/1 G2 W2/2)

(A96009) (21 FEB 74)

REFERENCE DATA

RAEF =	0.1980 IN.	1NRP =	.0000 IN.
LUKF =	5.3130 IN.	1NRP =	.0000 IN.
RAEF =	5.3130 IN.	2NRP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

RUN NO. 1041/ 0 GN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

	WACH	ALPHA	CPB1	CPB2	CPB3	CPB4	CABO	CABS	CABT
	.961	.000	-.25000	-.25370	-.24740	-.23220	.03790	.02310	.06640
		GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 1040/ D FIVL = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

FROM NO. 1039/ 0 R/V/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 1036/ 0 RN/L = 6.99 GRADIENT INTERVAL = -3.00/ 5.00

MACH	ALPHA	CFB1	CFB2	CFB3	CFB4	CBFO	CABS	CABT
1.953	.000	-.23990	-.24780	-.22000	-.22300	.03540	.01940	.01660
	GRADIENT	.00000	.00000	.00330	.00000	.00000	.00000	.00000

RUN NO. 1045/ 0 AN/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 380(1A53) GAS SUPPLY STRUT (CIF/1)

(A96101) (21 FEB 74)

REFERENCE DATA

BAEF =	9.190 IN.	10AP =	.0000 IN.
LAEP =	5.130 IN.	10AP =	.0000 IN.
BAEF =	5.130 IN.	20AP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 2001/ 0 AN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
.904	.000	-.47500	-.32740	-.28320	-.34040	-.31960	-.15990	-.09990
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2002/ 0 RM/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CP85	CP86	CP87	CP812	CP813	CP814	CP815
1.197	.000	-.35630	-.39660	-.40600	-.43970	-.40420	.05470	-.14380
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

Run No. 2019/ 0 RM/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 2016/ 0 AN/L = 7.15 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 2025/ 0 RM/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 388(1A53) GAS SUPPLY STRUT (C1F/1 M1/2)

(096103) (21 FEB 74)

REFERENCE DATA

WREF = 6.1960 IN XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

RUN NO. 2003/ 0 RN/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
.900	.000	-.46860	-.33500	-.27910	-.37590	-.34360	-.17740	-.19260
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2006/ 0 RN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.198	.000	-.36410	-.39380	-.41150	-.42510	-.39460	.03620	-.13760
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2013/ 0 RN/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.456	.000	-.20780	-.31730	-.33730	-.33400	-.31770	.16530	-.02980
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2018/ 0 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.931	.000	-.06680	-.22620	-.22810	-.24650	-.22810	.13500	.01770
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2023/ 0 RN/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
2.990	.000	.04130	-.09720	-.09200	-.09870	-.08360	.10090	.00330
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



WSFC 580 (1A53) GAS SUPPLY STRUT (C1F/1 M2/2)

(A96105) (21 FEB 74)

REFERENCE DATA

SWEP =	0.1980 IN.	198P =	.0000 IN.
LEEF =	5.3130 IN.	198P =	.0000 IN.
BREF =	5.3130 IN.	298P =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

RUN NO. 2042/ 0 RM/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 2043/ 0 RN/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
MACH	.000	-.34170	-.37380	-.39540	-.44280	-.39120	-.10600
1.199	.0000	.00000	.00000	.00000	.00000	.00000	.00000
GRADIENT	.0000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2038/ 0 RM/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CFB5	CFB6	CFB7	CFB12	CFB13	CFB14	CFB15
1.457	.000	-.19790	-.29660	-.30970	-.35340	-.29790	.22040	.02610
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2037/ 0 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
ALPHA		.00380	-.20770	-.20950	-.23100	-.20440	.24100	.15310
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2044/ 0 RM/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

NSFC 588 (1A53) GAS SUPPLY STRUT (CIF/1 61)

(R96106) (21 FEB 74)

REFERENCE DATA

```

BREF = 0.1980 IN      3MPP = .0000 IN.
LEEF = 5.3150 IN.     1MPP = .0000 IN.
BREF = 5.3150 IN.     2MPP = .0000 IN.
SCALE = .0000

```

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 2068/ 3 RM/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 2007/ 0 R/V/L = 6.62 GRADIENT INTERVAL = -5.00/ 3.00

WACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.193	.000	-.31520	-.39940	-.41630	-.44300	-.40560	.06050	-.12560
	GRADIENT	.00000	.00000	.00000	.05300	.00000	.00000	.00000

RUN 'D. 2012/ 0 RVL = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

	PACH	ALPHA	CP85	CP86	CF87	CF812	CF813	CF814	CF815
	1.465	.000	-.16700	-.29610	-.30880	-.32950	-.29530	.15240	-.00400
		GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2019/ 0 RM/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CFB14	CPB15
1.958	.000	-.02530	-.20980	-.21400	-.23140	-.21020	.14740	.06440
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2022/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

NSFC 500 (1A53) GAS SUPPLY STRUT (CIF/1 62) (R96107) (21 FEB 74)

REFERENCE DATA

DEPT	=	0.1900 IN.	2MP	=	.0000 IN.
LEDT	=	3.3130 IN.	1MP	=	.0000 IN.
DEPT	=	3.3130 IN.	2MP	=	.0000 IN.
SCALE	=	.0000			

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 2009/ 1 R/V/L = 6.14 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 2010/ 1 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
ALPHA	.000	-.21870	-.39690	-.43750	-.39740	.01940	-.10970
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2011/ 0 RN/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

	CFB5	CFB7	CFB12	CFB13	CFB14	CFB15
MAC	.000	-.29060	-.32940	-.29430	.16730	-.00950
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000

Run No. 2020/ 0 AN/L = 6.97 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

Run No. 2021/ 0 AN/L = 4.56 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

DATE 10 OCT 74

TABULATED SOURCE DATA, NSFC TWT 388 - 1A53

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NSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 H2/2)

(496109) (21 FEB 74)

REFERENCE DATA

REF = 6.1980 24. IN 2MRP = .0000 IN.
 LREF = 5.3130 IN. 1MRP = .0000 IN.
 BREF = 5.3130 IN. 2MRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 2041/ 0 RN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
.901	.000	-.33530	-.37360	-.34060	-.34840	-.35210	-.13910	-.21290
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2040/ 0 RN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.199	.000	-.20900	-.37700	-.40110	-.44090	-.38930	.08870	-.12950
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2039/ 0 RN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.451	.000	-.06960	-.29500	-.30030	-.34080	-.29540	.22140	.02130
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2036/ 0 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
1.953	.000	.02720	-.22710	-.20830	-.22070	-.21920	.24510	.17170
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 2045/ 0 RN/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB5	CPB6	CPB7	CPB12	CPB13	CPB14	CPB15
2.990	.000	.07940	-.08600	-.07780	-.08230	-.06890	.18070	.08900
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 580(1A33) GAS SUPPLY STAUT (CIF/1)

(R96201) (21 FEB 74)

REFERENCE DATA

BASE =	0.1900 IN.	XMRP =	.0000 IN.
LEAF =	5.3150 IN.	LMRP =	.0000 IN.
BRF =	5.3150 IN.	ZMRP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 3001/ 0 AN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3002/ 0 FNL = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

	CF87	CF88	CF89	CF810	CF811	CF812	CF815
MACRO							
ALPHA	.000						
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000
	-.40860	-.42240	-.14000	-.12430	-.43590	-.43970	-.14380

RUN NO. 3015/ 0 RM/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CFB7	CFB8	CFB9	CFB10	CFB11	CFB12	CFB15
1.458	.000	-.30870	-.32670	-.03350	-.04610	-.32380	-.33360	-.01790
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3016/ 0 RM/L = 7.15 GRADIENT INTERVAL = -5.00/ 5.00

	CPB7	CPB8	CPB9	CPB10	CPB11	CPB12	CPB15
MACH							
1.898	-.21570	-.23160	.01480	.02060	-.22410	-.23210	.11830
GRADIENT	.00000	.00000	.03000	.00000	.00000	.00000	.00000

RUN NO. 3025/ 0 RMVL = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

	CPB15	CPB12	CPB11	CPB10	CPB9	CPB8	CPB7	ALPHA	MACH
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.000	2.990
	.04810	-.09200	-.09270	.00490	-.01670	.00560	-.08450		

HAFC 500(1A53) GAS SUPPLY STRUT (CIF/1 M1/1)

(R98202) (21 FEB 74)

REFERENCE DATA

WET =	6.1000 IN.	WMP =	.0000 IN.
LET =	5.3130 IN.	WMP =	.0000 IN.
DET =	5.3130 IN.	WMP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
P-HI = .000

RUN NO. 3004/ 0 RN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

	CP87	CP88	CP810	CP811	CP812	CP815
ALPHA	.000	-.35080	-.33760	-.33550	-.33910	-.19990
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3003/ 0 RM/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

	CPB7	CPB6	CPB9	CPB10	CPB11	CPB12	CPB15
VACH	.000	- .38090	-.03320	-.07730	-.41600	-.41600	-.17080
ALPHA	.000	.00000	.00000	.00000	.00000	.00000	.00000
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000
1.200

RUN NO. 3014/ 0 RVL = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH													
	ALPHA	CPB7	CPB6	CPB9	CPB10	CPB11	CPB12	CPB15					
1.463	.000	-.31070	-.31600	-.04590	-.07740	-.32130	-.32860	-.04350					
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000					

RUN NO. 3017/ 0 RVL = 6.96 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3024/ 0 RVL = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

	CPR7	CPR8	CPR9	CPR10	CPR11	CPR12	CPR13
MACH	- .06980	-.06860	-.01670	-.03360	-.09800	-.09720	.06670
Z=990	.00000	.00000	.00000	.00000	.00000	.00000	.00000
	GRADIENT						

M8FC 500(1A53) GAS SUPPLY STRUT (C1F/1 M1/2)

(196203) (21 FEB 74)

REFERENCE DATA

BASE =	6.1900	IN.	10MP =	.0000	IN.
LAST =	5.3150	IN.	10MP =	.0000	IN.
BASE =	5.3150	IN.	20MP =	.0000	IN.
SCALE =	.0000				

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 3005/ 0 AN/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3006/ 0 $R^2/V_L = 6.64$ GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3013/ 0 RM/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3010/ 0 RN/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CP87	CP86	CP89	CP810	CP811	CP812	CP815
ALPHA	.000	-.22810	-.23560	-.08750	-.04420	-.24200	-.24650	.01770
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3023/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

	CP87	CP86	CP89	CP810	CP811	CP812	CP815
MACH	.000	-.09270	-.05950	-.02420	-.09950	-.09870	.00350
2.990	.00000	.00000	.00000	.00000	.00000	.00000	.00000
	GRADIENT						

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 W2/2)

(096205) (21 FEB 74)

REFERENCE DATA

DATE	=	6.1990	63.	IN	2MIP	=	.0000	IN.
LAST	=	5.3150	IN.		1MIP	=	.0000	IN.
DATE	=	5.3150	IN.		2MIP	=	.0000	IN.
SCALE	=	.0000						

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

RUN NO. 3042/ 0 RN/L = 8.22 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3043/ 0 RN/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

	WACH	ALPHA	CPB7	CPB8	CPB9	CPB10	CPB11	CPB12	CPB15
	1.199	.000	-.39340	-.42200	-.12340	-.13180	-.43680	-.44280	-.10600
		GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3038/ 0 RN/L = 6.43 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 3037/ 0 RNL = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

	MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
	1.949	.000	-.20960	-.22500	.01260	-.01260	-.22050	-.23100	.15310
			.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3044/ 0 RNL = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62)

(A96207) (21 FEB 74)

REFERENCE DATA

REF =	0.1900 IN	REF =	.0000 IN.
REF =	5.3130 IN.	REF =	.0000 IN.
REF =	5.3130 IN.	REF =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 3009/ 1 RN/L = 6.14 GRADIENT INTERVAL = -5.00/ 5.00

	CPB7	CPB8	CPB9	CPB10	CPB11	CPB12	CPB15
WACH	.000	.000	.000	.000	.000	.000	.000
GADIENT	.000	.000	.000	.000	.000	.000	.000
	- .32620	- .32620	- .39630	- .32040	- .33290	- .39200	- .13440

GUN NO. 3010/ 1 RN/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
1.203	.000	-.40410	-.42480	-.12500	-.11480	-.43490	-.43750	-.10970
	GRADIENT	.00000	.07000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3011/ 0 RN/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CP87	CP86	CP89	CP810	CP811	CP812	CP815
1.485	.000	-.30530	-.32330	-.04260	-.104870	-.32080	-.32940	-.00950
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3020/ 0 RN/L = 6.97 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CPB7	CPB6	CPB9	CPB10	CPB11	CPB12	CPB15
1.957	.000	-.21100	-.22380	.00170	-.00770	-.21660	-.22610	.12390
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3021/ 0 RM/L = 4.56 GRADIENT INTERVAL = -5.00/ 5.00

	CPB7	CPB8	CPB9	CPB10	CPB11	CPB12	CPB15
MACH	.000	-.09200	-.02040	-.00400	-.05870	-.09800	-.00160
2.990	.00000	.00000	.00000	.00000	.00000	.00000	.00000
	GRADIENT						

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TABULATED SOURCE DATA, MSFC TWT 508 - 1A53

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MSFC 508(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)

(096208) (21 FEB 74)

REFERENCE DATA

REF = 6.1980 82. IN XMRP = .0000 IN.
 LREF = 5.3130 IN. XMRP = .0000 IN.
 REF = 5.3130 IN. XMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 3029/ 0 RM/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
.904	.000	-.31370	-.34650	-.41080	-.37470	-.34240	-.34650	-.26670
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3028/ 0 RM/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
1.196	.000	-.39360	-.40670	-.16740	-.17940	-.41390	-.41770	-.14410
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3033/ 0 RM/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
1.453	.000	-.30620	-.32170	-.05100	-.11470	-.32780	-.33560	-.00280
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3034/ 0 RM/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
1.957	.000	-.21740	-.22790	-.01520	-.04500	-.22980	-.23250	.17480
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 3027/ 0 RM/L = 4.57 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CP87	CP88	CP89	CP810	CP811	CP812	CP815
2.990	.000	-.08230	-.07930	-.00180	.00400	-.08750	-.08680	.14340
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



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TABULATED SOURCE DATA, WUPC TWT 500 - 1A53

(#08208) (21 FEB 74)

WUPC 500(1A53) GAS SUPPLY STRUT (CIP/1 G2 W2/2)

REFERENCE DATA

DATE = 0.1000 02. IN
 LREF = 5.3130 IN.
 DATE = 5.3130 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 3041/ 0 R/V/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH .901
 ALPHA .000 CP87 CP88 CP89 CP810 CP811 CP812 CP815
 GRADIENT .00000 -.34060 -.36940 -.39400 -.33220 -.34790 -.34840 -.21290
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 3040/ 0 R/V/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.199
 ALPHA .000 CP87 CP88 CP89 CP810 CP811 CP812 CP815
 GRADIENT .00000 -.40110 -.42440 -.13540 -.14300 -.43670 -.44090 -.12950
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 3039/ 0 R/V/L = 5.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.461
 ALPHA .000 CP87 CP88 CP89 CP810 CP811 CP812 CP815
 GRADIENT .00000 -.30030 -.31910 -.02680 -.06430 -.33220 -.34080 .02130
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 3036/ 0 R/V/L = 6.29 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.953
 ALPHA .000 CP87 CP88 CP89 CP810 CP811 CP812 CP815
 GRADIENT .00000 -.20830 -.21550 .00350 -.02500 -.22000 -.22070 .17170
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 3045/ 0 R/V/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH 2.990
 ALPHA .000 CP87 CP88 CP89 CP810 CP811 CP812 CP815
 GRADIENT .00000 -.07730 -.07930 .00730 .01900 -.08230 -.08230 .08900
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000



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TABULATED SOURCE DATA, MSFC TWT 508 - 1A53

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MSFC 508(1A53) GAS SUPPLY STRUT (CIF/1 M1/1)

(098302) (21 FEB 74)

REFERENCE DATA

REF = 0.1000 IN XMRP = .0000 IN.
 LREF = 5.3130 IN. XMRP = .0000 IN.
 BREF = 5.3130 IN. XMRP = .0000 IN.
 SCALE = .0000

ALPHA = .000 BETA = .000
 PHI = .000

PARAMETRIC DATA

RUN NO. 4004/ 0 RN/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH .905
 ALPHA .000 CP816 CP817 CP818 CP819 CP820 CP821 CP822
 GRADIENT .00000 -.32300 -.30320 -.33560 -.32190 -.30210 -.28230 -.32560
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4003/ 0 RN/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.200
 ALPHA .000 CP816 CP817 CP818 CP819 CP820 CP821 CP822
 GRADIENT .00000 -.42070 -.43970 -.45110 -.43060 -.40550 -.40660 -.42110
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4014/ 0 RN/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.463
 ALPHA .000 CP816 CP817 CP818 CP819 CP820 CP821 CP822
 GRADIENT .00000 -.34170 -.35110 -.35520 -.34210 -.33310 -.33070 -.33930
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4017/ 0 RN/L = 6.96 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.961
 ALPHA .000 CP816 CP817 CP818 CP819 CP820 CP821 CP822
 GRADIENT .00000 -.26620 -.29700 -.29090 -.26360 -.26670 -.26180 -.26110
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4024/ 0 RN/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH 2.990
 ALPHA .000 CP816 CP817 CP818 CP819 CP820 CP821 CP822
 GRADIENT .00000 -.08080 -.10540 -.10760 -.10760 -.09350 -.10540 -.10790
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

(296303) (21 FEB 74)

MSFC 500 (1A53) GAS SUPPLY STRUT (CIF/1 M1/21)

REFERENCE DATA

BRP = 0.1900 IN. XWP = .0000 IN.
 LWP = 0.3150 IN. YWP = .0000 IN.
 BRP = 0.3150 IN. ZWP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 4003/ 0 RN/L = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 4008/ 0 RVL = 6.64 GRADIENT INTERVAL = -3.00/ 5.00

MACH		CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.198	.000	-.41110	-.41850	-.43740	-.41240	-.40140	-.38780	-.41540
		.00000	.00000	.00000	.00000	.00000	.00000	.00000
	GRADIENT							

RUN NO. 4013/ 0 RM/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
MACA							
1.456	.000	-.36630	-.38020	-.36750	-.35930	-.35400	-.36550
	.0000	.0000	.0000	.00000	.00000	.00000	.00000

2019 DEC 4 018 / 0 RM/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

3101 NO 4027/ 0 6N/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 590(1A53) GAS SUPPLY STRUT (CIF/1 W2/1)

(#96304) (21 FEB 74)

REFERENCE DATA

BREF	=	0.1000 IN.	ZIMP	=	.0000 IN.
LEEF	=	0.3150 IN.	IMP	=	.0000 IN.
BREF	=	0.3150 IN.	ZIMP	=	.0000 IN.
SCALE	=	.0000			

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

RUN NO. 4030/ 0 AN/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 4031/ 0 RM/L = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CP816	CP817	CP818	CP819	CP820	CP821	CP822
1.264	.000	-.41900	-.43700	-.44500	-.42810	-.40450	-.40200	-.42320
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4032/ 0 AN/L = 6.44 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CPE16	CPE17	CPE18	CPE19	CPE20	CPE21	CPE22
1.464	.000	-.32150	-.35010	-.34640	-.32890	-.30930	-.32030	-.32643
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4035/ 0 RN/L = 7.00 GRADIENT INTERVAL = -5.00/ 5.00

CP822	CP821	CP820	CP819	CP818	CP817	CP816	ALPHA	CP804
.00000	.00000	.00000	.00000	.00000	.00000	.00000	GRADIENT	1.950
-23950	-23760	-24290	-24440	-27520	-27710	-24330	.000	

RUN NO. 4026/ 0 RM/L = 4.59 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

MSFC 588(1A53) GAS SUPPLY STOUT (CIF/1 M2/2)

(096305) (21 FEB 74)

REFERENCE DATA

2ND = 9.1980 82. IN 2NDP = .0000 IN.
 1ST = 5.3130 IN. 1STP = .0000 IN.
 3RD = 5.3130 IN. 3RDP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 4042/ 0 RM/L = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
0.901	.000	-.36050	-.33590	-.35470	-.35840	-.34110	-.29190	-.36630
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4043/ 0 RM/L = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.199	.000	-.37590	-.41060	-.42290	-.37040	-.37640	-.37550	-.39200
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4038/ 0 RM/L = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.457	.000	-.33210	-.35500	-.36150	-.33620	-.32930	-.33500	-.33700
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4037/ 0 RM/L = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.946	.000	-.24720	-.27720	-.27080	-.24870	-.24310	-.24230	-.24380
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4044/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
2.990	.000	-.09720	-.09370	-.09800	-.09800	-.08600	-.09720	-.09120
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 508(1A53) GAS SUPPLY STRUT (CIF/1 61)

(A96306) (21 FEB 74)

REFERENCE DATA

SAEP =	6.1980 IN.	XAP =	.0000 IN.
LAEP =	5.3150 IN.	MAP =	.0000 IN.
BEF =	5.3150 IN.	ZAP =	.0000 IN.
SCALE =	.0000		

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

RUN NO. 4008/ 0 RM/L = 6.24 GRADIENT INTERVAL = -5.00/ 5.00

MACH		CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
.S05	DPO	- .32500	-.32240	-.35410	-.33250	-.31350	-.29370	-.33950
	GRADIENT?	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4007/ 0 RN/L = 6.62 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]

RUN NO. 4012/ 0 RM/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

WACH	ALPHA	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CPB22
1.463	.000	-.35250	-.36720	-.36720	-.35330	-.34070	-.34270	-.34960
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4019/ 0 RN/L = 6.98 GRADIENT INTERVAL = -5.00/ 5.00

	CP816	CP817	CP818	CP819	CP820	CP821	CP822
WACH							
ALPHA	.000						
GRADIENT	.0000	.00000	.00000	.00000	.00000	.00000	.00000
	-.25440	-.29320	-.28640	-.25810	-.25890	-.25360	-.25400

RUN NO. 4022/ 0 RM/L = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MARCH		CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
2,990	.000	-.10240	-.10770	-.10840	-.10990	-.09720	-.10990	-.10390
		.00000	.00000	.00000	.00000	.00000	.00000	.00000
		GADJENT						

MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62)

(R96307) (21 FEB 74)

REFERENCE DATA

REF = 0.1980 IN
 LREF = 3.3130 IN.
 REF = 3.3130 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000
 BETA = .000
 PHI = .000

RUN NO. 4009/ 1 RM/L = 6.14 GRADIENT INTERVAL = -5.00/ 5.00

MACH	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
0.895	.000	-.33310	-.32720	-.36040	-.34090	-.30140	-.34990
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4010/ 1 RM/L = 6.59 GRADIENT INTERVAL = -5.00/ 5.00

MACH	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
1.203	.000	-.42400	-.44000	-.46030	-.43410	-.40710	-.42560
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4011/ 0 RM/L = 6.46 GRADIENT INTERVAL = -5.00/ 5.00

MACH	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
1.463	.000	-.35920	-.37760	-.37840	-.35040	-.33060	-.35760
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4020/ 0 RM/L = 6.97 GRADIENT INTERVAL = -5.00/ 5.00

MACH	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
1.937	.000	-.25960	-.29320	-.28500	-.25890	-.25400	-.25400
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4021/ 0 RM/L = 4.56 GRADIENT INTERVAL = -5.00/ 5.00

MACH	CFB16	CFB17	CFB18	CFB19	CFB20	CFB21	CFB22
2.990	.000	-.10340	-.11210	-.11210	-.11290	-.10170	-.10620
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



MSFC 588 (1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)

(896308) (21 FEB 74)

REFERENCE DATA

WGT = 6.1940 LB. IN. XWGT = .0000 IN.
 LWT = 5.3130 IN. XWGT = .0000 IN.
 BWT = 5.3130 IN. XWGT = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 4029/ 0 PNL = 6.23 GRADIENT INTERVAL = -5.00/ 5.00

MACH .904
 ALPHA .000 CPE16 CPE17 CPE18 CPE19 CPE20 CPE21 CPE22
 GRADIENT .00000 -.29120 -.30270 -.32780 -.29640 -.27550 -.23730 -.31320
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4029/ 0 PNL = 6.63 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.196
 ALPHA .000 CPE16 CPE17 CPE18 CPE19 CPE20 CPE21 CPE22
 GRADIENT .00000 -.41940 -.44060 -.44990 -.43130 -.40720 -.40670 -.42620
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4033/ 0 PNL = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.432
 ALPHA .000 CPE16 CPE17 CPE18 CPE19 CPE20 CPE21 CPE22
 GRADIENT .00000 -.32660 -.35440 -.35230 -.33520 -.31440 -.32540 -.33150
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4034/ 0 PNL = 5.98 GRADIENT INTERVAL = -5.00/ 5.00

MACH 1.957
 ALPHA .000 CPE16 CPE17 CPE18 CPE19 CPE20 CPE21 CPE22
 GRADIENT .00000 -.24550 -.27890 -.27430 -.24680 -.24600 -.24110 -.24270
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

RUN NO. 4027/ 0 PNL = 4.57 GRADIENT INTERVAL = -5.00/ 5.00

MACH 2.990
 ALPHA .000 CPE16 CPE17 CPE18 CPE19 CPE20 CPE21 CPE22
 GRADIENT .00000 -.09950 -.09120 -.09870 -.09870 -.08680 -.09720 -.09270
 .00000 .00000 .00000 .00000 .00000 .00000 .00000 .00000

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TABULATED SOURCE DATA, WSPC TWT 508 - 1A53

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WSPC 508 (1A53) GAS SUPPLY STRUT (CIF/1 62 W2/2)

(096309) (21 FEB 74)

REFERENCE DATA

REF 2 6.1000 84. IN WMP 2 .0000 IN.
 LREF 2 5.3130 IN. WMP 2 .0000 IN.
 REF 2 5.3130 IN. WMP 2 .0000 IN.
 SCALE 2 .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

RUN NO. 4041/ 0 RNL = 6.22 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
.901	.000	-.32120	-.50710	-.32900	-.31960	-.30290	-.25890	-.33060
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4040/ 0 RNL = 6.64 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.199	.000	-.37150	-.40450	-.41420	-.36520	-.37070	-.36960	-.36530
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4039/ 0 RNL = 6.45 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.461	.000	-.33260	-.35870	-.36320	-.33830	-.33100	-.33750	-.33670
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4038/ 0 RNL = 6.99 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
1.993	.000	-.24670	-.27980	-.27270	-.25120	-.24600	-.24300	-.24670
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 4045/ 0 RNL = 4.58 GRADIENT INTERVAL = -5.00/ 5.00

MACH	ALPHA	CPB16	CPB17	CPB18	CPB19	CPB20	CPB21	CPB22
2.990	.000	-.09650	-.09420	-.09720	-.09720	-.09380	-.09650	-.09380
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000



APPENDIX

TABULATED SOURCE DATA

PRESSURE DATA

Tabulations of plotted data are available on request from
Data Management Services.

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TABULATED SOURCE DATA, MBFC TWT 500 - 1A53

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MBFC 500 (1A53) GAS SUPPLY STRUT (C1F/1)

(596051)

(11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN.50. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

MACH (1) = .905 ALPHA (1) = .000 Q = 7.412 PU = 22.000 P = 12.941 RM/L = 6.240

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2564
 .511 -.3603
 .641 -.5434
 .785 -.7208

MACH (2) = 1.197 ALPHA (1) = .000 Q = 9.134 PU = 22.000 P = 9.114 RM/L = 6.640

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.1680
 .511 -.3220
 .641 -.4351
 .785 -.4770

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.468 PU = 21.993 P = 6.301 RM/L = 6.450

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2013
 .511 -.3136
 .641 -.3528
 .785 -.3541

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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1) (R66U51)

MACH (4) = 1.000 ALPHA (1) = .000 Q = 10.567 PU = 28.110 P = 4.100 RM/L = 7.16U

SECTION (1) CRIBITER UPPER WING DEPENDENT VARIABLE CP

X/C .491U
Z/Y/B
.344 -.1333
.511 -.19U4
.641 -.1974
.785 -.1588

MACH (5) = 2.99U ALPHA (1) = .000 Q = 5.186 PU = 29.998 P = .825 RM/L = 4.56U

SECTION (1) CRIBITER UPPER WING DEPENDENT VARIABLE CP

X/C .491U
Z/Y/B
.344 -.18U8
.511 -.1845
.641 -.1882
.785 -.1756



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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 3

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 M1/1)

(696082) (11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 EREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

MACH (1) = .905 ALPHA (1) = .000 Q = 7.421 PU = 22.010 P = 12.938 RM/L = 6.290

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910
 Z1/E
 .344 -.2646
 .511 -.3620
 .641 -.5470
 .785 -.7331

MACH (2) = 1.201 ALPHA (1) = .000 Q = 9.144 PU = 22.000 P = 9.164 RM/L = 6.640

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910
 Z1/B
 .344 -.1729
 .511 -.3425
 .641 -.4549
 .785 -.4896

MACH (3) = 1.464 ALPHA (1) = .000 Q = 9.486 PU = 21.998 P = 6.313 RM/L = 6.490

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910
 Z1/B
 .344 -.2179
 .511 -.3188
 .641 -.3637
 .785 -.3646

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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 4

MSFC 500(1A53) GAS SUPPLY STRUT (C3F/1 M1/1) (R9KUS2)

MACH (4) = 1.961 ALPHA (1) = .000 Q = 10.233 PU = 28.112 P = 3.801 RN/L = 6.570

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B

.344 -.1413

.511 -.1946

.641 -.2025

.785 -.2078

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.008 P = .829 RN/L = 4.580

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B

.344 -.1413

.511 -.1946

.641 -.2025

.785 -.2078

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 5

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 M1/2)

(59RUSS) (11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN.82. YMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
BREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

MACH (1) = .903 ALPHA (1) = .000 Q = 7.381 PU = 22.003 P = 13.000 RM/L = 6.240

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
.344 -.2849
.511 -.3666
.641 -.5646
.785 -.7600

MACH (2) = 1.198 ALPHA (1) = .000 Q = 9.136 PU = 22.003 P = 9.167 RM/L = 6.650

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
.344 -.1745
.511 -.3459
.641 -.4585
.785 -.4956

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.995 P = 6.383 RM/L = 6.470

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
.344 -.1307
.511 -.3230
.641 -.3651
.785 -.3634

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TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

PAGE 6

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M1/2) (REQURS)

MACH (4) = 1.992 ALPHA (1) = .000 Q = 10.285 PU = 26.112 P = 3.858 RN/L = 7.100

SECTION (1) CRBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/E

.344 -.1375
.511 -.1961
.641 -.2044
.785 -.2036

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 30.013 P = .629 RN/L = 4.580

SECTION (1) CRBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B

.344 -.0823
.511 -.0853
.641 -.0793
.785 -.0764



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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (CIS/1 M2/1)

OROSUBA (11 APR 74)

REFERENCE DATA

BREF = 6.1900 IN.80. 10RFP = .0000 IN.
 LREF = 5.3130 IN. 10RFP = .0000 IN.
 BREF = 5.3130 IN. 20RFP = .0000 IN.
 SCALE = .0000

MACH (1) = .697 ALPHA (1) = .000 Q = 7.352 PU = 22.000 P = 13.149 RM/L = 6.220

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z1/B
 .344 -.3264
 .511 -.3648
 .641 -.6110
 .785 -.8103

MACH (2) = 1.207 ALPHA (1) = .000 Q = 9.159 PU = 21.908 P = 8.987 RM/L = 6.650

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z1/B
 .344 -.2208
 .511 -.4180
 .641 -.4286
 .785 -.4957

MACH (3) = 1.484 ALPHA (1) = .000 Q = 9.467 PU = 22.000 P = 8.332 RM/L = 6.480

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z1/B
 .344 -.2521
 .511 -.3546
 .641 -.3914
 .785 -.3689

PARAMETRIC DATA

ALPHA = .000 ZETA = .000
 P01 = -90.000

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TABULATED SOURCE DATA. MSFC TWT 500 - 1A53

PAGE 0

MSFC 500 (1A53) GAS SUPPLY STRUT (C1F/1 M2/1) (0596064)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.287 PU = 27.099 P = 3.064 RM/L = 7.144

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B

.344 -.1939
.511 -.2166
.641 -.2196
.785 -.2131

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 30.013 P = .829 RM/L = 4.594

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B

.344 -.1704
.511 -.1764
.641 -.1801
.785 -.1669



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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (C1P/1 M2/2)

(ORIGINS) (11 APR 74)

REFERENCE DATA

PARAMETRIC DATA

SREF = 6.1900 IN.50. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

ALPHA = .000 ZETA = .000
 PHI = -90.000

MACH (1) = .902 ALPHA (1) = .000 Q = 7.387 PU = 22.003 P = 12.569 RM/L = 6.220

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.3066
 .511 -.3500
 .641 -.6348
 .785 -.8960

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.141 PU = 22.003 P = 9.079 RM/L = 6.630

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2519
 .511 -.4271
 .641 -.5202
 .785 -.5883

MACH (3) = 1.457 ALPHA (1) = .000 Q = 9.474 PU = 22.003 P = 6.376 RM/L = 6.430

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2207
 .511 -.3321
 .641 -.3713
 .785 -.3664

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TABULATED SOURCE DATA, MSFC TWT 588 - 1A55

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MSFC 588(1A55): GAS SUPPLY STRUT (C1F/1 M2/2) (596J85)

MACH (4) = 1.949 ALPHA (1) = .000 Q = 10.295 PU = 28.174 P = 3.872 RM/L = 6.590

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .0910
Z/Y/B
.344 -.1289
.511 -.2104
.641 -.2194
.785 -.2198

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.100 P = .829 RM/L = 4.580

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910
Z/Y/B
.344 -.0711
.511 -.0756
.641 -.0778
.785 -.0711

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TABULATED SOURCE DATA, MOPC TWT 500 - 1A53

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MOPC 500(1A53) GAS SUPPLY STRUT (C3F7/1 G3)

(090006) (11 APR 74)

REFERENCE DATA

BREF = 6.1900 IN. (S) YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

MACH (1) = .906 ALPHA (1) = .000 Q = 7.424 PU = 22.026 P = 12.931 RM/L = 6.820

SECTION (1) ORBITER UPPER WING

X/C .4910

Z/Y/B
 .344 -.2697
 .511 -.3268
 .641 -.5661
 .785 -.7630

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.137 PU = 22.023 P = 9.133 RM/L = 6.820

SECTION (1) ORBITER UPPER WING

X/C .4910

Z/Y/B
 .344 -.2026
 .511 -.3973
 .641 -.4616
 .785 -.5060

MACH (3) = 1.466 ALPHA (1) = .000 Q = 9.465 PU = 21.906 P = 6.297 RM/L = 6.470

SECTION (1) ORBITER UPPER WING

X/C .4910

Z/Y/B
 .344 -.195
 .511 -.3241
 .641 -.3662
 .785 -.3674

DATE 28 OCT 74

TABULATED SOURCE DATA, MPTC TWT 500 - 1A53

PAGE 12

MPTC 500(1A53) GAS SUPPLY STRUT (C17/1 G1) (R000000)

MACH (4) = 1.959 ALPHA (1) = .000 Q = 10.246 PU = 20.712 P = 3.818 RM/L = 6.98U

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .491U

Z/Y/B

.344 -.1469

.511 -.2037

.641 -.2067

.785 -.2098

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 30.018 P = .830 RM/L = 4.58U

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .491U

Z/Y/B

.344 -.14631

.511 -.2033

.641 -.2063

.785 -.2093

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TABULATED SOURCE DATA, MSFC TMT 588 - 1A53

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MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62)

(090057) (11 APR 74)

REFERENCE DATA

XREF = 6.1900 IN. SQ. YREF = .0000 IN.
 LREF = 5.3130 IN. YREF = .0000 IN.
 BREF = 5.3130 IN. ZREF = .0000 IN.
 SCALE = .0000

MACH (1) = .696 ALPHA (1) = .000

Q = 7.330 PU = 21.998 P = 13.053 RM/L = 6.140

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2835
 .511 -.3684
 .641 -.5912
 .785 -.7846

MACH (2) = 1.214 ALPHA (1) = .000

Q = 9.157 PU = 22.145 P = 9.029 RM/L = 6.610

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.1997
 .511 -.3689
 .641 -.4561
 .785 -.5156

MACH (3) = 1.463 ALPHA (1) = .000

Q = 9.465 PU = 21.995 P = 6.316 RM/L = 6.460

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2180
 .511 -.3147
 .641 -.3572
 .785 -.3560



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TABULATED SOURCE DATA, MSFC TWT 568 - 1A53

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MSFC 568(1A53) GAS SUPPLY STRUT (C1F/1 C2)

(R9CJ87)

MACH (4) = 1.958 ALPHA (1) = .000 Q = 10.292 PU = 28.110 P = 3.822 RN/L = 6.98U
SECTION (1) ORBITER UPPER WING
DEPENDENT VARIABLE CP

X/C .4910

ZY/B
.344 -.1472
.511 -.2033
.641 -.2113
.785 -.2147

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.108 P = .829 RN/L = 4.57U
SECTION (1) ORBITER UPPER WING
DEPENDENT VARIABLE CP

X/C .4910

ZY/B
.344 -.1645
.511 -.1898
.641 -.1935
.785 -.1803



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TABULATED SOURCE DATA, W8FC TWT 568 - 1A53

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W8FC 568 (1A53) GAS SUPPLY STEUT (CIF/1 62 M2/1)

(580884) (11 APR 74)

REFERENCE DATA

REF = 6.1960 IN. 80. YREF = .0000 IN.
 LREF = 5.3130 IN. YREF = .0000 IN.
 DREF = 5.3130 IN. ZREF = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -.90.000

MACH (1) = .904 ALPHA (1) = .000 Q = 7.408 PU = 21.995 P = 12.946 RM/L = 6.620

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.3210
 .511 -.3539
 .641 -.5825
 .785 -.7950

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.129 PU = 22.000 P = 9.119 RM/L = 6.630

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2763
 .511 -.4395
 .641 -.5012
 .785 -.5025

MACH (3) = 1.453 ALPHA (1) = .000 Q = 9.471 PU = 21.995 P = 6.408 RM/L = 6.680

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2633
 .511 -.3601
 .641 -.3958
 .785 -.3960

DATE 26 OCT 74

TABULATED SOURCE DATA, NSFC TWT 500 - 1A53

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NSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 C2 M2/1) (R900000)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.252 PU = 20.000 P = 3.822 RM/L = 6.580

DEPENDENT VARIABLE CP

SECTION (1) ORBITER UPPER WING

X/C .4910

Z/Y/B

.344 -.1497
.511 -.2147
.641 -.2178
.785 -.2136

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 20.000 P = .829 RM/L = 4.580

DEPENDENT VARIABLE CP

SECTION (1) ORBITER UPPER WING

X/C .4910

Z/Y/B

.344 -.1696
.511 -.1764
.641 -.1808
.785 -.1704



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TABULATED SOURCE DATA, WSPC TWT 500 - 1A53

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WSPC 500(1A53) GAS SUPPLY STRUT (CIP/1 63 MB/2)

(000000) (11 APR 74)

REFERENCE DATA

REF = 6.1900 IN.80. YREF = .0000 IN.
 LREF = 5.3130 IN. YREF = .0000 IN.
 REF = 5.3130 IN. ZREF = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -.90.000

MACH (1) = .902 ALPHA (1) = .000 Q = 7.306 PG = 21.996 P = 12.980 RM/L = 6.230

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.3080
 .511 -.3226
 .641 -.6248
 .785 -.9049

MACH (2) = 1.159 ALPHA (1) = .000 Q = 9.140 PG = 22.000 P = 9.080 RM/L = 6.650

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2814
 .511 -.4417
 .641 -.5348
 .785 -.5880

MACH (3) = 1.462 ALPHA (1) = .000 Q = 9.470 PG = 22.000 P = 6.330 RM/L = 6.450

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
 .344 -.2156
 .511 -.3297
 .641 -.3755
 .785 -.3493

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500 (1A53) GAS SUPPLY STRUT (CIF/1 CE M2/2) (R96U89)

MACH (4) = 1.954 ALPHA (1) = .000 Q = 10.274 PU = 26.112 P = 3.246 RN/L = 7.000

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
.344 -.1283
.511 -.2106
.641 -.2189
.785 -.2200

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.008 P = .829 RN/L = 4.580

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

X/C .4910

Z/Y/B
.344 -.1096
.511 -.0734
.641 -.0771
.785 -.0726



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TABULATED SOURCE DATA, NSFC TWT 500 - 1A53

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NSFC 500(1A53) GAS SUPPLY STRUT (C3F/1)

(096L81) (11 APR 74)

REFERENCE DATA

REF = 6.1900 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

MACH (1) = .905 ALPHA (1) = .000 Q = 7.412 PU = 22.000 P = 12.941 RM/L = 6.240

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .305 .0820
 .521 .0180
 .660 -.0587
 .797 -.1505

MACH (2) = 1.197 ALPHA (1) = .000 Q = 9.134 PU = 22.000 P = 9.106 RM/L = 6.640

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .305 .2469
 .521 .2669
 .660 .2778
 .797 .2155

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.468 PU = 21.993 P = 6.301 RM/L = 6.450

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .305 .2997
 .521 .2885
 .660 .3373
 .797 .2617

PARAMETRIC DATA

ALPHA = .000 KETA = .000
 PHI = .000

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TABULATED SOURCE DATA, MSFC TWT 586 - 1A53

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MSFC 586(1A53) GAS SUPPLY STRUT (CJF/1)

(596L81)

MACH (4) = 1.898 ALPHA (1) = .000 Q = 10.587 PU = 28.179 P = 4.190 RM/L = 7.160

SECTION (1) ORBITER LOWER WING
DEPENDENT VARIABLE CP

X/C .4900
Z1/B
.385
.521
.660
.797

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.186 PU = 28.998 P = .829 RM/L = 4.580

SECTION (1) ORBITER LOWER WING
DEPENDENT VARIABLE CP

X/C .4900
Z1/B
.385
.521
.660
.797



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TABULATED SOURCE DATA, MSFC TWT 580 - 1A53

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MSFC 580 (1A53) GAS SUPPLY STRUT (CSP/1 M1/1)

(R09LS2) (11 APR 74)

REFERENCE DATA

SEEP = 6.1985 IN.50. YMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
BREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0000

PARAMETRIC DATA

ALPHA = .0000 BETA = .0000
PHI = .0000

MACH (1) = .905 ALPHA (1) = .0000 Q = 7.421 PU = 22.000 P = 12.938 RN/L = 6.250

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.0339
.521
.0313
.660
-.0510
.797
-.1458

MACH (2) = 1.201 ALPHA (1) = .0000 Q = 9.144 PU = 22.000 P = 9.164 RN/L = 6.640

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.2275
.521
.2372
.660
.2778
.797
.2199

MACH (3) = 1.464 ALPHA (1) = .0000 Q = 9.466 PU = 21.998 P = 6.313 RN/L = 6.450

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4500

Z1/B
.385
.3060
.521
.3000
.660
.3032
.797
.2465

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TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 MI/1)

MACH (4) = 1.961 ALPHA (1) = .000 Q = 10.233 PU = 20.112 P = 3.801 RM/L = 6.570

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900
Z/Y/B
.385
.2849
.521
.3076
.860
.1269
.797
.0816

MACH (5) = 2.090 ALPHA (1) = .000 Q = 5.108 PU = 30.102 P = .829 RM/L = 4.580

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900
Z/Y/B
.385
.1464
.521
.1846
.640
.0533
.797
.0585



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TABULATED SOURCE DATA, WSCC TWT 586 - 1A53

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WSCC 586(1A53) GAS SUPPLY STRUT (CSP/1 M1/2)

(509L83) (11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN. SQ. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

ALPHA = .000 BETA = .000
 PHI = .000

PARAMETRIC DATA

MACH (1) = .901 ALPHA (1) = .000 Q = 7.381 PU = 22.005 P = 13.000 RM/L = 6.280

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .385 .0713
 .521 .0142
 .660 -.0659
 .797 -.1566

MACH (2) = 1.198 ALPHA (1) = .000 Q = 9.136 PU = 22.003 P = 9.097 RM/L = 6.650

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .385 .2321
 .521 .2414
 .660 .2601
 .797 .2105

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.995 P = 6.381 RM/L = 6.477

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .385 .3127
 .521 .3336
 .660 .3544
 .797 .4192

DATE 26 OCT 74

TABULATED SOURCE DATA, NMF C TWT 500 - 1A53

PAGE 24

NMF C 500 (1A53) GAS SUPPLY STRUT (C1F/1 M1/2) (R06LJ3)

MACH (4) = 1.952 ALPHA (1) = .000 Q = 10.205 PU = 20.112 P = 3.050 RN/L = 7.140

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797

.2997
.3065
.1839
.0971

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.169 PU = 30.013 P = .829 RN/L = 4.500

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797

.1509
.0942
.0577
.0547



DATE 24 OCT 74

TABULATED SOURCE DATA, NMFPC TWT 500 - 1A53

PAGE 25

NMFPC 500(1A53) GAS SUPPLY STRUT (C1F/1 M2/1)

REFERENCE DATA

SETP = 6.1980 IN.30. 30MRP =
LREF = 5.3130 IN. 11MRP =
BREF = 5.3130 IN. 2MRP =
SCALE = .0000

.0000 IN.
.0000 IN.
.0000 IN.

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -90.000

MACH (1) = .097 ALPHA (1) =

.000

Q

=

7.352

PU

=

22.000

P

=

13.049

RM/L

=

6.820

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B

.395 .0600

.521 .0017

.660 -.0081

.797 -.1923

MACH (2) = 1.207 ALPHA (1) =

.000

Q

=

9.159

PU

=

21.999

P

=

6.907

RM/L

=

6.650

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B

.395 .3140

.521 .3102

.660 .2811

.797 .2157

MACH (3) = 1.464 ALPHA (1) =

.000

Q

=

9.467

PU

=

22.000

P

=

6.312

RM/L

=

6.440

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B

.395 .2707

.521 .2335

.660 .1804

.797 .1485

DATE 28 OCT 74

TABULATED SOURCE DATA, MFC TWT 500 - 1A53

PAGE 26

MFC 508(1A53) GAS SUPPLY STRUT (CIP/1 MB/1)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.207 PU = 27.990 P = 3.964 RM/L = 7.000

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

M/C .4900
ZT/B
.305 .2731
.521 .2263
.660 .1480
.797 .1025

MACH (5) = 2.980 ALPHA (1) = .000 Q = 5.169 PU = 30.013 P = .829 RM/L = 4.590

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

M/C .4900
ZT/B
.305 .1556
.521 .1196
.660 .0622
.797 .0675



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 27

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 M2/2)

(R90L85) (11 APR 74)

REFERENCE DATA

SREF = 6.1900 IN.30. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 EREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

ALPHA = .000 BETA = .000
 PHI = -90.000

PARAMETRIC DATA

MACH (1) = .902 ALPHA (1) = .000 Q = 7.307 PU = 22.003 P = 12.900 RM/L = 6.220

SECTION (1) ORBITER LOWER WING

X/C .4900

Z/Y/B

.305
 .1502
 .521
 .0729
 .660
 -.0239
 .797
 -.1239

MACH (2) = 1.199 ALPHA (2) = .000 Q = 9.141 PU = 22.003 P = 9.079 RM/L = 6.630

SECTION (1) ORBITER LOWER WING

X/C .4900

Z/Y/B

.305
 .3092
 .521
 .3566
 .660
 .3059
 .797
 .2054

MACH (3) = 1.457 ALPHA (3) = .000 Q = 9.474 PU = 22.003 P = 6.376 RM/L = 6.450

SECTION (1) ORBITER LOWER WING

X/C .4900

Z/Y/B

.305
 .4433
 .521
 .4571
 .660
 .4624
 .797
 .4473

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

MSFC 500(1A53) GAS SUPPLY STRUT (C1P/1 M2/2) (R06L85)

MACH (4) = 1.949 ALPHA (1) = .000 Q = 10.295 PU = 26.174 P = 3.672 RN/L = 6.99U

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797

.4010
.3477
.3041
.2012

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.008 P = .829 RN/L = 4.58U

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797

.2247
.1628
.0823
.0950



DATE 24 OCT 74

TABULATED SOURCE DATA, MSFC TWT 506 - 1A53

PAGE 29

MSFC 540(1A53) GAS SUPPLY STRUT (CIP/1 63)

(090866) (11 APR 74)

REFERENCE DATA

REF = 6.1960 IN. SQ. XREF = .0000 IN.
 UNF = 5.3130 IN. YREF = .0000 IN.
 REF = 5.3130 IN. ZREF = .0000 IN.
 SCALE = .0040

ALPHA = .000 BETA .000
 PHI = .000

PARAMETRIC DATA

MACH (1) = .906 ALPHA (1) = .000 Q = 7.424 PU = 22.048 P = 12.931 RM/L = 6.290

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
 .305 .0651
 .521 .0010
 .660 -.0598
 .797 -.1406

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.137 PU = 22.023 P = 9.133 RM/L = 6.420

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
 .305 .2798
 .521 .2695
 .660 .2921
 .797 .2299

MACH (3) = 1.486 ALPHA (1) = .000 Q = 9.465 PU = 21.988 P = 6.297 RM/L = 6.470

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
 .305 .0754
 .521 .0754
 .660 .0754
 .797 .0754

DATE 26 OCT 74

TABULATED SOURCE DATA, HSPC TWT 500 - 1A53

PAGE 30

HSPC 500(1A53) GAS SUPPLY STRUT (CJF/1 61)

(090L86)

MACH (4) = 1.959 ALPHA (1) = .000 Q = 10.240 PG = 20.112 P = 3.810 RM/L = 6.900

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B

.305
.2553
.521
.2727
.060
.2723
.797
.0883

MACH (5) = 2.890 ALPHA (1) = .000 Q = 9.189 PG = 30.010 P = .830 RM/L = 4.580

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B

.305
.1598
.521
.0510
.660
.0271
.797
.0308



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A55

PAGE 31

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 G2)

(0906187) (11 APR 74)

REFERENCE DATA

BREF = 6.1900 IN. SQ. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 EREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000
 PHI = .000
 ETA = .000
 ZETA = .000

MACH (1) = .896 ALPHA (1) = .000 Q = 7.336 PU = 21.996 P = 13.063 RM/L = 6.140

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .305 .0321
 .521 .0041
 .660 -.0627
 .797 -.1512

MACH (2) = 1.204 ALPHA (1) = .000 Q = 9.157 PU = 22.005 P = 9.029 RM/L = 6.610

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .305 .2255
 .521 .2474
 .660 .2690
 .797 .2348

MACH (3) = 1.463 ALPHA (1) = .000 Q = 9.465 PU = 21.995 P = 6.316 RM/L = 6.460

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
 .305 .2045
 .521 .2490
 .660 .2143
 .797 .1918

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 32

MSFC 500(1A53) GAS SUPPLY STRUT (C3F/1 62)

(F96LS7)

MACH (4) = 1.850 ALPHA (1) = .000 Q = 10.252 P0 = 20.000 P = 3.822 RN/L = 6.980

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.100 P0 = 30.000 P = .829 RN/L = 4.570

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

Z1/B
.385
.521
.660
.797



DATE 28 OCT 74

TABULATED SOURCE DATA, NSPC TUR 500 - 1A53

PAGE 33

NSPC 500 (1A53) GAS SUPPLY STRUT (CIP/1 62 IN/1)

0806L80 (11 APR 74)

REFERENCE DATA

REF = 6.1300 IN. 50. YMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
EREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0040

MACH (1) = .904 ALPHA (1) = .000 Q = 7.416 PU = 21.995 P = 12.946 RM/L = 6.281

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
.305 .0392
.521 -.0006
.660 -.0055
.797 -.1042

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.120 PU = 22.000 P = 9.119 RM/L = 6.630

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
.305 .2731
.521 .2015
.660 .2690
.797 .2091

MACH (3) = 1.453 ALPHA (1) = .000 Q = 9.471 PU = 21.995 P = 6.416 RM/L = 6.460

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z/Y/B
.305 .2100
.521 .1303
.660 .0390
.797 .0281

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -.90.000

DATE 20 OCT 74

PAGE 34

TABULATED SOURCE DATA, MSFC TVT 900 - 1A53

MSFC 900(1A53) GAS SUPPLY STRUT (CIF/1 62 MS/1) (0961.84)

MACH (4) = 1.990 ALPHA (1) = .000 Q = 10.252 PU = 28.779 P = 3.822 RM/L = 8.980

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B

.365
.2299
.521
.660
.797
.1001

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.169 PU = 30.013 P = .829 RM/L = 4.590

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900

Z1/B

.365
.1978
.521
.660
.797
.0868



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 35

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 G2 W2/2)

(0506150) (11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN. SQ. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

ALPHA = .000 BETA = .000
 PHI = -90.000

PARAMETRIC DATA

MACH (1) = .902 ALPHA (1) = .000 Q = 7.300 PU = 21.098 P = 12.980 EN/L = 6.230

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .385
 .521
 .660
 .797

.1325
 .0398
 -.0276
 -.1249

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.140 PU = 22.000 P = 9.080 EN/L = 6.650

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .385
 .521
 .660
 .797

.3498
 .3371
 .2982
 .2410

MACH (3) = 1.462 ALPHA (1) = .000 Q = 9.470 PU = 22.000 P = 6.333 EN/L = 6.450

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

X/C .4900
 Z/Y/B
 .385
 .521
 .660
 .797

.4162
 .4306
 .4574
 .4280

DATE 26 OCT 74

TABLED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 36

MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2) (R9EL59)

MACH (4) = 1.954 ALPHA (1) = .000 Q = 10.274 PU = 20.112 P = 3.846 RW/L = 7.000

SECTION (1) CRIBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

27/B
 .395
 .521
 .660
 .797
 .2730

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.008 P = .829 RW/L = 4.540

SECTION (1) CRIBITER LOWER WING

DEPENDENT VARIABLE CP

X/C .4900

27/B
 .395
 .521
 .660
 .797
 .0565



TABLED SOURCE DATA, MSFC TWT 500 - 1A53

DATE 08 OCT 74

(R06001) (11 APR 74)

MSFC 500 (1A53) GAS SUPPLY STRUT (CIF/1)

PARAMETRIC DATA

REFERENCE DATA

SREF = 6.1900 IN. SQ. YMRP = .0000 IN.
 LREF = 5.5130 IN. YMRP = .0000 IN.
 EREF = 5.5130 IN. ZMRP = .0000 IN.
 SCALE = .0000

ALPHA = .000
 PHI = .000

BETA = .000
 BETA = .000

MACH (1) = .905 ALPHA (1) = .000 Q = 7.412 PU = 22.000 P = 12.941 RM/L = 6.840

DEPENDENT VARIABLE CP

SECTION (1) ORBITER UPPER WING

21/8 .5110

W/C

.107 -.0483
 .300 -.4133
 .491 -.3603
 .700 -.3022
 .907 -.1234

MACH (2) = 1.197 ALPHA (1) = .000 Q = 9.134 PU = 22.003 P = 9.106 RM/L = 6.640

DEPENDENT VARIABLE CP

SECTION (1) ORBITER UPPER WING

21/8 .5110

W/C

.107 .0229
 .300 -.3309
 .491 -.3280
 .700 -.0309
 .907 -.1400

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.993 P = 6.361 RM/L = 6.450

DEPENDENT VARIABLE CP

SECTION (1) ORBITER UPPER WING

21/8 .5110

W/C

.107 .0787
 .300 -.2454
 .491 -.5136
 .700 -.1296
 .907 -.1049

DATE 28 OCT 74

TABULATED SOURCE DATA, NUPC TWT 500 - 1A53

PAGE 38

NUPC 500(1A53) GAS SUPPLY STRUT (C1P71) (0804U1)

MACH (4) = 1.000 ALPHA (1) = .000 Q = 10.567 PU = 20.170 P = 4.190 RM/L = 7.1EU

SECTION (1) CRIBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .1216
.300 -.1120
.491 -.1904
.700 -.1516
.907 .0326

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.186 PU = 29.996 P = .829 RM/L = 4.9EU

SECTION (1) CRIBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .0461
.300 .0220
.491 -.0045
.700 -.0793
.907 -.0726



DATE 29 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 39

MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 MI/1)

(1964102) (11 APR 74)

REFERENCE DATA

BREF = 6.1000 IN.02. YMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
BREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

MACH (1) = .903 ALPHA (1) = .000 Q = 7.421 PU = 22.000 P = 12.938 RM/L = 6.250

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 -.0416
.300 -.4189
.491 -.3620
.700 -.3933
.907 -.1359

MACH (2) = 1.201 ALPHA (1) = .000 Q = 9.144 PU = 22.000 P = 9.164 RM/L = 6.640

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .0271
.300 -.3234
.491 -.3423
.700 -.0507
.907 -.1699

MACH (3) = 1.464 ALPHA (1) = .000 Q = 9.466 PU = 21.990 P = 6.333 RM/L = 6.450

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .0659
.300 -.2494
.491 -.3180
.700 -.1304
.907 -.1422

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 4U

MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 M1/1) (R964102)

MACH (4) = 1.961 ALPHA (1) = .000 Q = 10.233 PU = 20.112 P = 3.811 RM/L = 6.97U

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .511U

X/C

.107 .0733
.300 -.1330
.491 -.1946
.700 -.1575
.907 -.1419

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.100 P = .829 RM/L = 4.58U

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .511U

X/C

.107 .0681
.300 -.1807
.491 -.1853
.700 -.0793
.907 -.0719



DATE 28 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 MI/2)

05064US

(11 APR 74)

REFERENCE DATA

REF = 6.1000 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 REF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = .000

MACH (1) = .501 ALPHA (1) = .000 Q = 7.361 PU = 22.003 P = 13.000 RM/L = 6.240

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 -.0721
 .300 -.4951
 .491 -.3446
 .700 -.4080
 .907 -.1793

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.136 PU = 22.003 P = 9.167 RM/L = 6.650

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 -.0156
 .300 -.3468
 .491 -.3459
 .700 -.0446
 .907 -.1483

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.995 P = 6.361 RM/L = 6.470

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .0706
 .300 -.2446
 .491 -.3230
 .700 -.1241
 .907 -.1432

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 M1/2) (556403)

MACH (4) = 1.852 ALPHA (1) = .000 Q = 10.295 PU = 28.112 P = 3.858 RM/L = 7.000

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/B -5110

X/C

.107 .0734
 .300 -.1284
 .491 -.1961
 .700 -.1828
 .907 -.0495

MACH (5) = 2.590 ALPHA (1) = .000 Q = 5.189 PU = 30.013 P = .829 RM/L = 4.500

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/B -5110

X/C

.107 .0823
 .300 -.0837
 .491 -.0853
 .700 -.0801
 .907 -.0734



DATE 28 OCT 74

TABULATED SOURCE DATA, MHC TVT 500 - 1A53

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MHC 500(1A53) GAS SUPPLY STRUT (CSF/1 MB/S)

0906414) (11 APR 74)

REFERENCE DATA

REF = 6.1900 IN. SQ. WARP = .0000 IN.
 LEFT = 5.3130 IN. WARP = .0000 IN.
 RIGHT = 5.3130 IN. WARP = .0000 IN.
 SCALE = .0040

MACH (1) = .687 ALPHA (1) = .000 Q = 7.352 PU = 22.000 P = 13.049 RM/L = 6.220

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

ZT/E .5110

X/C

.107 -.2033
 .300 -.5041
 .491 -.3648
 .700 -.4295
 .907 -.2712

MACH (2) = 1.207 ALPHA (1) = .000 Q = 9.159 PU = 21.000 P = 8.987 RM/L = 6.690

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

ZT/E .5110

X/C

.107 -.0890
 .300 -.3517
 .491 -.4180
 .700 .0320
 .907 -.1098

MACH (3) = 1.484 ALPHA (1) = .000 Q = 9.467 PU = 22.000 P = 6.212 RM/L = 6.440

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

ZT/E .5110

X/C

.107 .0072
 .300 -.2725
 .491 -.3548
 .700 -.1120
 .907 .1419

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -.90.000

DATE 26 OCT 74

TABULATED SOURCE DATA, WSPC TWT 500 - 1A53

PAGE 44

WSPC 500(1A53) GAS SUPPLY STRUT (C3F/1 W2/1)

(GSR4UM)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.287 PU = 27.799 P = 3.564 RN/L = 7.000

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

27/B .5110

Y/C

.107 .0652
.300 -.1440
.491 -.2166
.700 -.1782
.907 -.0602

MACH (5) = 2.870 ALPHA (1) = .000 Q = 5.189 PU = 30.013 P = .829 RN/L = 4.590

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

27/B .5110

Y/C

.107 .0694
.300 -.0582
.491 -.0764
.700 -.0719
.907 -.0674



DATE 26 OCT 74

TABULATED SOURCE DATA, NSFC TWT 560 - 1A53

PAGE 45

NSFC 560(1A53) GAS SUPPLY STRUT (C1F/1 W2/2)

(596405)

(11 APR 74)

REFERENCE DATA

BREF = 6.1960 IN.50. XREF = .0000 IN.
 LREF = 5.3130 IN. YREF = .0000 IN.
 EREF = 5.3130 IN. ZREF = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

MACH (1) = .902 ALPHA (1) = .000 Q = 7.387 PU = 22.003 P = 12.988 RM/L = 6.220

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

27/B .5110

X/C

.107 -.2401
 .300 -.6107
 .491 -.3500
 .700 -.4097
 .907 -.4086

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.141 PU = 22.003 P = 9.079 RM/L = 6.630

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

27/B .5110

X/C

.107 -.0574
 .300 -.3514
 .491 -.4271
 .700 -.0079
 .907 -.1412

MACH (3) = 1.457 ALPHA (1) = .000 Q = 9.474 PU = 22.003 P = 6.376 RM/L = 6.450

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

27/B .5110

X/C

.107 .0212
 .300 -.2499
 .491 -.3321
 .700 -.0499
 .907 .0306

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

PAGE 46

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M2/2) (5964105)

MACH (4) = 1.949 ALPHA (1) = .000 Q = 10.295 PU = 28.114 P = 3.872 RM/L = 6.990

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

21/8 .5110

X/C

.107 .0622
.300 -.1375
.491 -.2104
.700 -.1642
.907 -.0109

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.168 PU = 30.108 P = .829 RM/L = 4.580

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

21/8 .5110

X/C

.107 .0620
.300 -.0540
.491 -.0756
.700 -.0681
.907 -.0362



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 586 - 1A53

PAGE 47

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 61)

(896416) (11 APR 74)

REFERENCE DATA

SREF = 6.1980 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

ALPHA = .000 BETA = .000
 PHI = .000

PARAMETRIC DATA

MACH (1) = .906 ALPHA (1) = .000 Q = 7.424 PU = 22.008 P = 12.931 RM/L = 6.250

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

21/E -5110

Y/C

.107 -.1166
 .300 -.4620
 .491 -.3588
 .700 -.3948
 .907 -.1531

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.137 PU = 22.103 P = 9.133 RM/L = 6.620

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

21/E -5110

Y/C

.107 -.0358
 .300 -.3710
 .491 -.3073
 .700 -.0333
 .907 -.1442

MACH (3) = 1.466 ALPHA (1) = .000 Q = 9.465 PU = 21.998 P = 6.297 RM/L = 6.470

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

21/E -5110

Y/C

.107 .0509
 .300 -.2358
 .491 -.3241
 .700 -.1422
 .907 -.0438

DATE 26 OCT 74

TABULATED SOURCE DATA, WSPC TWT 500 - 1A53

PAGE 40

WSPC 500 (1A53) GAS SUPPLY STRUT (C1F/1 G1)

(R96406)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.246 PU = 28.112 P = 3.818 RM/L = 6.984

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B -5110

X/C

.107 -.0549
.300 -.1483
.491 -.2057
.700 -.3710
.907 -.1649

MACH (5) = 2.990 ALPHA (1) = .000 Q = 9.189 PU = 30.018 P = .830 RM/L = 4.584

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B -5110

X/C

.107 -.0819
.300 -.1622
.491 -.1683
.700 -.1616
.907 -.0771



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 506 - 1A53

PAGE 49

MSFC 506(1A53) GAS SUPPLY STRUT (CIF/1 02)

(590407) (11 APR 74)

REFERENCE DATA

SREF = 6.1900 IN. SQ. XMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
BREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = .000

MACH (1) = .896 ALPHA (1) = .000 Q = 7.350 PU = 21.998 P = 13.183 RM/L = 6.140

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

27/E .5110

X/C

.107 -.1634
.300 -.5080
.491 -.3694
.700 -.4115
.907 -.1159

MACH (2) = 1.204 ALPHA (1) = .000 Q = 9.157 PU = 22.105 P = 9.129 RM/L = 6.640

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

27/E .5110

X/C

.107 -.0249
.300 -.3599
.491 -.3089
.700 -.0451
.907 -.1803

MACH (3) = 1.463 ALPHA (1) = .000 Q = 9.463 PU = 21.995 P = 6.316 RM/L = 6.460

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

27/E .5110

X/C

.107 .0476
.300 -.2477
.491 -.3147
.700 -.1377
.907 -.1445

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 50

MSFC 500 (1A53) GAS SUPPLY STRUT (CIF/1 G2) (696407)

MACH (4) = 1.956 ALPHA (1) = .000 Q = 10.252 PU = 28.179 P = 3.822 FM/L = 6.965
SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/E .5110

M/C

.107 .0413
.300 -.1491
.491 -.2053
.700 -.1646
.907 -.0639

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.148 P = .829 FM/L = 4.570
SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/E .5110

M/C

.107 .0403
.300 -.1459
.491 -.0898
.700 -.0836
.907 -.0771



DATE 26 OCT 74

TABULATED SOURCE DATA, NSFC TWT 500 - 1A53

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NSFC 588(1A53) GAS SUPPLY STRUT (C1P/1 G2 M2/1)

(R96408) (11 APR 74)

REFERENCE DATA

GREF = 5.1900 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

MACH (1) = .904 ALPHA (1) = .000 Q = 7.406 PU = 21.995 P = 12.946 RN/L = 6.240

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 -.2071
 .300 -.5036
 .491 -.3539
 .700 -.4176
 .907 -.3507

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.129 PU = 22.000 P = 9.119 RN/L = 6.630

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 -.0678
 .300 -.3991
 .491 -.4305
 .700 .0282
 .907 -.0873

MACH (3) = 1.453 ALPHA (1) = .000 Q = 9.471 PU = 21.995 P = 6.408 RN/L = 6.480

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z1/B .5110

X/C

.107 .0007
 .300 -.2833
 .491 -.3601
 .700 -.1890
 .907 .0060

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -.90.000

DATE 25 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 52

MSFC 500(1A53) GAS SUPPLY STRUT (C1F/1 62 W2/1) (05664UN)

MACH (4) = 1.896 ALPHA (1) = .000 Q = 10.252 PU = 29.170 P = 3.822 RM/L = 6.940

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

Z/Y/E -5110

X/C

.107 .1682
.300 -.1419
.491 -.2147
.700 -.1812
.907 -.1639

MACH (5) = 2.990 ALPHA (1) = .000 Q = 9.100 PU = 30.013 P = .829 RM/L = 4.540

SECTION (1) ORBITER UPPER WING

DEPENDENT VARIABLE CP

Z/Y/E -5110

X/C

.107 .1694
.300 -.1685
.491 -.1764
.700 -.1719
.907 -.1674



DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 584 - 1A53

PAGE 53

MSFC 584 (1A53) GAS SUPPLY STRUT (C1F/1 62 M2/2)

(R564109) (11 APR 74)

REFERENCE DATA

SREF = 6.198U IN. SQ. XREF = .000U IN.
 LREF = 5.513U IN. YREF = .000U IN.
 BREF = 5.513U IN. ZREF = .000U IN.
 SCALE = .004U

MACH (1) = .902 ALPHA (1) = .000 Q = 7.368 PU = 21.998 P = 12.98U RN/L = 6.23U

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/B .511U

X/C
 .107 -.2626
 .300 -.618U
 .491 -.3526
 .700 -.4107
 .907 -.4023

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.14U PU = 22.00U P = 9.04U RN/L = 6.65U

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/B .511U

X/C
 .107 -.1652
 .300 -.3732
 .491 -.4417
 .700 .140U
 .907 -.1337

MACH (3) = 1.482 ALPHA (1) = .000 Q = 9.47U PU = 22.00U P = 6.333 RN/L = 6.45U

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

ZY/B .511U

X/C
 .107 .0447
 .300 -.2534
 .491 -.3297
 .700 -.0321
 .907 .1283

PARAMETRIC DATA

ALPHA = .00U DELTA = .00U
 PHI = -.90.00U

DATE 26 OCT 74

TABULATED SOURCE DATA: NSFC TWT 500 - 1A53

PAGE 54

NSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/2)

(F9C4U9)

MACH (4) = 1.054 ALPHA (1) = .000 Q = 10.274 PU = 28.112 P = 3.846 RN/L = 7.000

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z7/B -5110

X/C

.107 .0641
.300 -.1394
.491 -.2106
.700 -.1065
.907 -.0175

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.100 PU = 30.000 P = .829 RN/L = 4.500

SECTION (1) ORBITER UPPER WING DEPENDENT VARIABLE CP

Z7/B -5110

X/C

.107 .0608
.300 -.0532
.491 -.0734
.700 -.0659
.907 -.0555



DATE 28 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 55

MSFC 500(1A53) GAS SUPPLY STRUT (C3P/1)

US064L1) (11 APR 74)

REFERENCE DATA

BREP = 6.1900 IN.80. YMRP = .0000 IN.
 LREP = 5.3130 IN. YMRP = .0000 IN.
 DREP = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

MACH (1) = .905 ALPHA (1) = .000 Q = 7.412 PU = 22.000 P = 12.941 RM/L = 6.240

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .0403
 .280 .0617
 .490 .0189
 .690 -.4255

MACH (2) = 1.197 ALPHA (1) = .000 Q = 9.134 PU = 22.003 P = 9.116 RM/L = 6.640

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .1832
 .280 .1254
 .490 .2869
 .690 -.1642

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.993 P = 6.393 RM/L = 6.690

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .1109
 .280 .2229
 .490 .2825
 .690 .1274

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 Pn1 = .000

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 500 - 1A53

PAGE 56

MSFC 500(1A53) GAS SUPPLY STRUT (C3F/1)

(R964L1)

MACH (4) = 1.898 ALPHA (1) = .000 Q = 10.567 PU = 28.079 P = 4.180 RN/L = 7.160

SECTION (1) CRBITER LOWER WING

DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .0682
.280 .0217
.490 .3006
.690 .2252

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.186 PU = 29.998 P = .829 RN/L = 4.580

SECTION (1) CRBITER LOWER WING

DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .0742
.280 .0384
.490 .0854
.690 .1249

DATE 26 OCT 74

TABULATED SOURCE DATA, NSFC TWT 588 - 1A53

PAGE 57

NSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M/1)

(F96AL2) (11 APR 74)

REFERENCE DATA

SREF = 6.1985 IN. SQ. YMRP = .0000 IN.
LREF = 5.3130 IN. YMRP = .0000 IN.
BREF = 5.3130 IN. ZMRP = .0000 IN.
SCALE = .0040

ALPHA = .000 BETA = .000
PHI = .000

PARAMETRIC DATA

MACH (1) = .905 ALPHA (1) = .000 Q = 7.421 PU = 22.000 P = 12.938 RM/L = 6.250

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z7/B .5210

X/C
.072 .0266
.280 .0563
.490 .0313
.690 -.4178

MACH (2) = 1.201 ALPHA (1) = .000 Q = 9.144 PU = 22.000 P = 9.064 RM/L = 6.640

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z7/B .5210

X/C
.072 .1755
.280 .1074
.490 .2372
.690 -.1644

MACH (3) = 1.464 ALPHA (1) = .000 Q = 9.466 PU = 21.998 P = 6.313 RM/L = 6.450

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z7/B .5210

X/C
.072 .1460
.280 .2191
.490 .3040
.690 .1272

DATE 24 OCT 74

TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

PAGE 5A

MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 M1/1) (R964L2)

MACH (4) = 1.961 ALPHA (1) = .000 Q = 10.233 PU = 28.112 P = 3.801 RN/L = 6.970

SECTION (1) GREATER LOWER WING DEPENDENT VARIABLE CP

Z1/E .5210

W/C

.072 .0880
.280 .0219
.490 .3076
.690 .2135

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.008 P = .829 RN/L = 4.580

SECTION (1) GREATER LOWER WING DEPENDENT VARIABLE CP

Z1/E .5210

W/C

.072 .0749
.280 .0242
.490 .0846
.690 .1293



DATE 28 OCT 74

TABULATED SOURCE DATA, MSFC TWT 506 - 1A53

PAGE 59

MSFC 506(1A53) GAS SUPPLY STRUT (CIF/1 M1/2)

(R964L3) (11 APR 74)

REFERENCE DATA

SEEF = 6.1980 IN. SQ. YMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREP = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

MACH (1) = .901 ALPHA (1) = .000 Q = 7.381 PU = 22.005 P = 13.000 RM/L = 6.240

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/E .5210

X/C

.072 .0346
 .280 .0477
 .490 .0342
 .690 -.4305

MACH (2) = 1.190 ALPHA (1) = .000 Q = 9.136 PU = 22.005 P = 9.197 RM/L = 6.650

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/E .5210

X/C

.072 -.1961
 .280 .1293
 .490 .2414
 .690 -.0725

MACH (3) = 1.456 ALPHA (1) = .000 Q = 9.469 PU = 21.995 P = 6.361 RM/L = 6.470

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/B .5210

X/C

.072 .2405
 .280 .1951
 .490 .3336
 .690 .1310

PARAMETRIC DATA

ALPHA = .000 LETA = .000
 PHI = .000

DATE 28 OCT 74

TABULATED SOURCE DATA, MBFC TWT 588 - 1A53

PAGE 60

MBFC 588(1A53) GAS SUPPLY STRUT (CIF/1 MI/2) (RSL3)

MACH (4) = 1.952 ALPHA (1) = .144 Q = 10.285 PU = 28.112 P = 3.858 RN/L = 7.144

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

21/B .5210

X/C

.072 .0780
.280 .1091
.490 .3069
.690 .2166

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 30.033 P = .829 RN/L = 4.561

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

21/B .5210

X/C

.072 .0711
.280 .1264
.490 .1842
.690 .1278



DATE 28 OCT 74

TABULATED SOURCE DATA, MSFC TWT 586 - 1A53

PAGE 61

MSFC 586(1A53) GAS SUPPLY STRUT (C1F/1 M2/1)

(59641)

(11 APR 74)

REFERENCE DATA

SEEP = 6.1980 IN.SG. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 DREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000
 PHI = -90.000
 ETA = .000

MACH (1) = .897 ALPHA (1) = .000 Q = 7.352 PU = 22.105 P = 13.149 RM/L = 6.220

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .0117
 .280 .0196
 .490 .0017
 .690 -.0247

MACH (2) = 1.207 ALPHA (1) = .000 Q = 9.159 PU = 21.988 P = 8.987 RM/L = 6.650

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .1443
 .280 .0888
 .490 .3112
 .690 -.0253

MACH (3) = 1.464 ALPHA (1) = .000 Q = 9.467 PU = 22.100 P = 6.312 RM/L = 6.440

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

Z1/B .5210

X/C

.072 .1089
 .280 .2552
 .490 .2335
 .690 .1695

DATE 24 OCT 74

TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

PAGE 02

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 M2/1) (MSR4LA)

MACH (4) = 1.990 ALPHA (1) = .000 Q = 10.287 PU = 27.099 P = 3.864 RM/L = 7.144

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

2Y/B .5210

X/C

.072 .1460
.280 .0310
.490 .2265
.690 .1773

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.189 PU = 30.013 P = .829 RM/L = 4.590

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

2Y/B .5210

X/C

.072 .1825
.280 .0495
.490 .1196
.690 .1560



DATE 26 OCT 74

TABULATED SOURCE DATA, NSFC TWT 580 - 1A53

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NSFC 580(1A53) GAS SUPPLY STRUT (C1F/1 M2/2)

(5964LS) (11 APR 74)

REFERENCE DATA

BREF = 6.1900 IN./2. YGRP = .0000 IN.
LEFT = 5.3130 IN. YGRP = .0000 IN.
BREF = 5.3130 IN. ZGRP = .0000 IN.
SCALE = .0000

PARAMETRIC DATA

ALPHA = .000 BETA = .000
PHI = -.90.000

MACH (1) = .902 ALPHA (1) = .000 Q = 7.307 PU = 22.003 P = 12.900 RM/L = 6.220

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

Z1/E .5210

X/C

.072 .1001
.280 .1566
.490 .0729
.690 -.4155

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.141 PU = 22.003 P = 9.079 RM/L = 6.630

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

Z1/E .5210

X/C

.072 .3427
.280 .3528
.490 .3566
.690 -.0155

MACH (3) = 1.457 ALPHA (1) = .000 Q = 9.474 PU = 22.003 P = 6.376 RM/L = 6.450

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

Z1/E .5210

X/C

.072 .3649
.280 .3216
.490 .4571
.690 .1716

DATE 26 OCT 74

TABULATED SOURCE DATA, MSFC TWT 586 - 1A53

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MSFC 586(1A53) GAS SUPPLY STRUT (CIF/1 M2/2)

(R964L5)

MACH (4) = 1.949 ALPHA (1) = .000 Q = 10.295 PU = 28.114 P = 3.872 EN/L = 6.594

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

27/B .5210

X/C

.072 .2185
.280 .1174
.490 .3477
.690 .2996

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.114 P = .829 EN/L = 4.584

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

27/B .5210

X/C

.072 .1650
.280 .1846
.490 .1628
.690 .1882



DATE 28 OCT 76

TABULATED SOURCE DATA, NUSC TWT 968 - 1A53

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NUSC 968(1A53) GAS SUPPLY STRUT (CIF/1 63)

(R06416) (11 APR 76)

REFERENCE DATA

BREF = 6.1900 IN.50. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 BREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

ALPHA = .000
 PHI = .000
 BETA = .000

PARAMETRIC DATA

MACH (1) = .908 ALPHA (1) = .000 Q. = 7.424 PU = 22.008 P = 12.931 RM/L = 6.250

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZT/B .5210

X/C

.072
 .072
 .280
 .0724
 .490
 .0010
 .690
 -.4297

MACH (2) = 1.196 ALPHA (1) = .000 Q. = 9.137 PU = 22.023 P = 9.133 RM/L = 6.620

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZT/B .5210

X/C

.072
 .072
 .280
 .1355
 .490
 .2895
 .690
 -.0379

MACH (3) = 1.466 ALPHA (1) = .000 Q. = 9.465 PU = 21.998 P = 6.297 RM/L = 6.470

SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZT/B .5210

X/C

.072
 .072
 .280
 .2797
 .2104
 .490
 .8754
 .690
 .8754

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TABULATED SOURCE DATA, NSFC TWT 500 - 1A53

NSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 61)

(H96416)

MACH (4) = 1.959 ALPHA (1) = .000 Q = 10.248 PU = 28.112 P = 3.818 RN/L = 6.98U

DEPENDENT VARIABLE CP

SECTION (1) ORBITER LOWER WING

27/E .521U

W/C

.072 .0806
.28U .0104
.49U .2727
.69U .2144

MACH (5) = 2.990 ALPHA (1) = .000 Q = 1.189 PU = 30.018 P = .63U RN/L = 4.58U

DEPENDENT VARIABLE CP

SECTION (1) ORBITER LOWER WING

27/E .521U

W/C

.072 .0457
.28U .0485
.49U .0510
.69U .0949



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TABULATED SOURCE DATA, MBFC TWT 500 - 1A53

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MBFC 500(1A53) GAS SUPPLY STRUT (CIF/1 62)

(0604L7) (11 APR 74)

REFERENCE DATA

SREF = 6.198U IN.50. YMRP = .000U IN.
LREF = 5.313U IN. YMRP = .000U IN.
BREF = 5.313U IN. ZMRP = .000U IN.
SCALE = .000U

ALPHA = .000U BETA = .000U
PHI = .000U

PARAMETRIC DATA

MACH (1) = .096 ALPHA (1) = .000 Q = 7.330 PU = 21.998 P = 13.143 RM/L = 6.14U

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

2Y/B .521U

Y/C
.072 .0916
.28U .0631
.49U .0041
.69U -.4247

MACH (2) = 1.204 ALPHA (1) = .000 Q = 9.157 PU = 22.003 P = 9.129 RM/L = 6.64U

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

2Y/B .521U

Y/C
.072 .247U
.28U .1473
.49U .2474
.69U -.0523

MACH (3) = 1.463 ALPHA (1) = .000 Q = 9.465 PU = 21.995 P = 6.316 RM/L = 6.46U

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

2Y/B .521U

Y/C
.072 .2421
.28U .1943
.49U .249U
.69U .1269

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TABULATED SOURCE DATA, MSFC TWT 584 - 1A53

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MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2)

(R964L7)

MACH (4) = 1.958 ALPHA (1) = .000 Q = 10.252 PU = 28.179 P = 3.822 RN/L = 6.980

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

ZY/B .5210

X/C

.072 .1156
.280 .1250
.490 .2220
.590 .2001

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.048 P = .829 RN/L = 4.570

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

ZY/B .5210

X/C

.072 .0652
.280 .0294
.490 .1040
.590 .1077



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TABULATED SOURCE DATA, MSFC TWT 584 - 1A53

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(R964L8) (11 APR 74)

MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1)

REFERENCE DATA

SREF = 6.1980 IN. SQ. XMRP = .0000 IN.
 LREF = 5.3130 IN. YMRP = .0000 IN.
 EREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0000

MACH (1) = .904 ALPHA (1) = .000 Q = 7.406 PU = 21.995 P = 12.546 RM/L = 6.240

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/E .5210

X/C

.072 .0069
 .280 -.0025
 .490 -.0066
 .690 -.0097

MACH (2) = 1.196 ALPHA (1) = .000 Q = 9.129 PU = 22.000 P = 9.119 RM/L = 6.630

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/E .5210

X/C

.072 .1434
 .280 .0029
 .490 .2815
 .690 -.0399

MACH (3) = 1.453 ALPHA (1) = .000 Q = 9.471 PU = 21.995 P = 8.406 RM/L = 6.460

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/E .5210

X/C

.072 .1584
 .280 .1702
 .490 .1363
 .690 .0893

PARAMETRIC DATA

ALPHA = .000 LETA = .000
 PHI = -90.000

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LABULATED SOURCE DATA, MSFC TWT 500 - 1A53

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MSFC 500(1A53) GAS SUPPLY STRUT (CIF/1 62 M2/1) (056418)

MACH (4) = 1.950 ALPHA (1) = .000 Q = 10.252 PU = 30.119 P = 3.822 RM/L = 6.584

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/B .5210

X/C

.072 .1511
.280 .1563
.490 .2129
.690 .1494

MACH (5) = 2.890 ALPHA (1) = .000 Q = 5.169 PU = 30.113 P = .829 RM/L = 4.584

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

27/B .5210

X/C

.072 .1203
.280 .1823
.490 .1874
.690 .1419



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TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

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MSFC 588(1A53) GAS SUPPLY STRUT (CIF/1 G2 M2/2)

0506419) (11 APR 74)

REFERENCE DATA

XREF = 6.1980 IN. SQ. XMRP = .0000 IN.
 YREF = 5.3130 IN. YMRP = .0000 IN.
 ZREF = 5.3130 IN. ZMRP = .0000 IN.
 SCALE = .0040

PARAMETRIC DATA

ALPHA = .000 BETA = .000
 PHI = -90.000

MACH (1) = .902 ALPHA (1) = .000 Q = 7.300 PU = 21.998 P = 12.980 RM/L = 6.230
 SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZY/B .5210

X/C

.072 .2126
 .280 .1477
 .490 .0598
 .690 -.4128

MACH (2) = 1.199 ALPHA (1) = .000 Q = 9.140 PU = 22.000 P = 9.080 RM/L = 6.650
 SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZY/E .5210

X/C

.072 .3780
 .280 .3477
 .490 .3371
 .690 -.0250

MACH (3) = 1.482 ALPHA (1) = .000 Q = 9.470 PU = 22.005 P = 6.333 RM/L = 6.450
 SECTION (1) ORBITER LOWER WING

DEPENDENT VARIABLE CP

ZY/E .5210

X/C

.072 .3994
 .280 .3333
 .490 .4305
 .690 .1630

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TABULATED SOURCE DATA, MSFC TWT 588 - 1A53

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MSFC 588(1A53) GAS SUPPLY STRUT (C1F/1 62 W2/2) (R564L9)

MACH (4) = 1.954 ALPHA (1) = .000 Q = 10.274 PU = 28.112 P = 3.846 RM/L = 7.044

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

21/E .5210

X/C

.072 .2854
.280 .3065
.490 .2925
.690 .3129

MACH (5) = 2.990 ALPHA (1) = .000 Q = 5.188 PU = 30.048 P = .829 RM/L = 4.580

SECTION (1) ORBITER LOWER WING DEPENDENT VARIABLE CP

21/E .5210

X/C

.072 .1643
.280 .1958
.490 .2068
.690 .1755

